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IN THIS ISSUE . . .

Do We Need A Missouri Valley Authority?

By

Senator Harry P. Cain of Washington

and

Senator Paul H. Douglas of Illinois

FLOOD CONTROL—WHAT'S THE ANSWER?

. . . and these two articles about the profession

Blueprint for Success As A Consulting Engineer

A Review of the Profession's Activities in 1951

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American Engineer

JANUARY
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"Let me suggest that the hope that the comparative freedom of the American people may endure lies in the ultimate attainment in public affairs of scholarly and professional thought, pursued under the discipline of the scientific spirit, and motivated by a philosophy of public good."

Robert E. Doherty
Past President, Carnegie Institute of Technology

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By Senator Paul H. Douglas, Pro, and Senator Harry P. Cain, Con. Read what these two distinguished senators have to say about the controversial MVA. Is one central agency the answer, or will it become a taxpayer's nightmare?

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By David A. Heller, Staff Writer. Two prominent Baltimore consulting engineers tell their professional story. Valuable tips are included for all professional engineers.

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LETTERS

Personality . . .

Dear Editor:

At the end of the article entitled "How Important is Personality to the Professional Engineer?", in the November issue, you invite comments from readers on the subject, so this is it. I would like to give strong endorsement to the principles developed in this article to the effect that personality is most important to the success of an engineer or to anybody else. Personality can only be developed in contact with other people and the simplest way to bring about such contacts is to take part in organizations which interest you. I would like to point out, however, that while it is important for the engineer to keep up his contacts with professional and technical organizations, it is equally important that he affiliate himself with other organizations not connected with his profession. I am thinking of such things as the Chamber of Commerce, Community Chest, Churches, P. T. A., Boy Scouts, Homes Districts, and various health and character building organizations. Nearly every one of these organizations has a Building Committee and an engineer is always a "natural" for such a committee. In fact once he lands such an assignment, the organization will never let him go.

You may advance the argument that such things take time. Correct—and that is the whole point. Personality and influence are developed the hard way and at the sacrifice of time—sometimes money. Real genuine personality must be inherent in the individual because it is a phase of one's character.

My entry for the engineer who has attained great success because of his effective personality, is Mr. Harry Darby of Kansas City. He is a graduate Mechanical Engineer and good enough in that line to head a large and successful steel fabricating plant in Kansas City. During World War II his firm built several hundred steel PT landing boats for the Navy at Kansas City and floated them from here to the Gulf Coast. He has been Director of Highways in the State of Kansas, National Republican Committeeman, President of the American Royal Livestock Show, a successful farmer, a United States Senator by appointment from Governor Carlson, and yet with it all, a "darned good fellow" as anyone from Kansas City will tell you.

A. R. WATERS, P. E.,
Kansas City, Mo.

Dear Editor:

I cannot help writing a few words in reply to your thought provoking article in the November, 1951 issue of the AMERICAN ENGINEER entitled "How Important Is Personality to The Professional Engineer?"

Dr. Link evidently has a pretty vague idea of what engineers—professional engineers—do and what they consider their aim professionally. His basis "So far as it effects security, a good personality is more important than a good mind" shows this. I think pretty few professional engineers work with the thought of security as their goal. I think most engineers want to be a success at whatever they are doing. Secondly, a good personality never solved a complex en-

(*Continued on page* 32)

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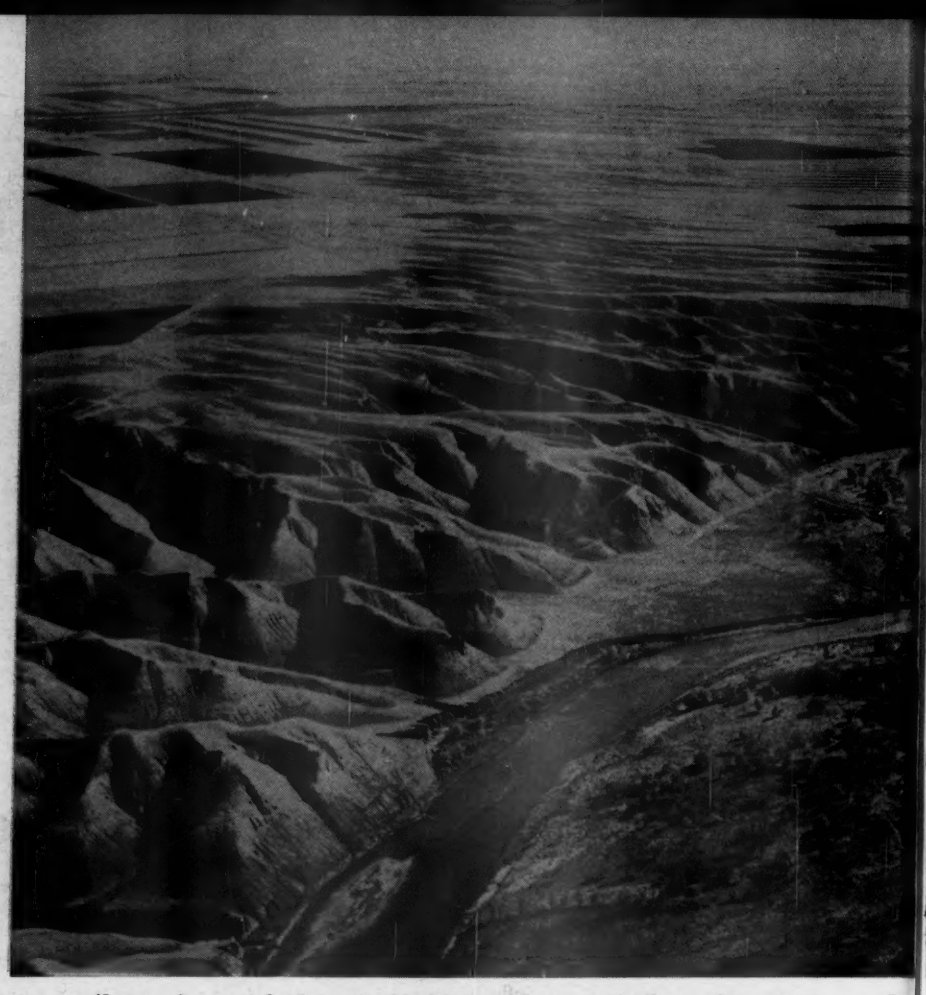
Senator Paul H. Douglas

Below: Fertile land, such as this strip in the Mirage Flats Project would mean increased profits for America.

Below: The Courtland Canal in the Missouri Basin—one step toward checking the "hungriest river's" appetite.



Above: An aerial shot of the Upper Missouri, looking downstream at the ation of the present Inter-Agency system of Missouri Valley is adequate, says the public pocket, says Senator Douglas.

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Senat

In this issue, the American Engin eer bers of the U. S. Senate in a disc ussi

Do We Need A Missou ri

YES! *Says*

Senator Paul H. Douglas

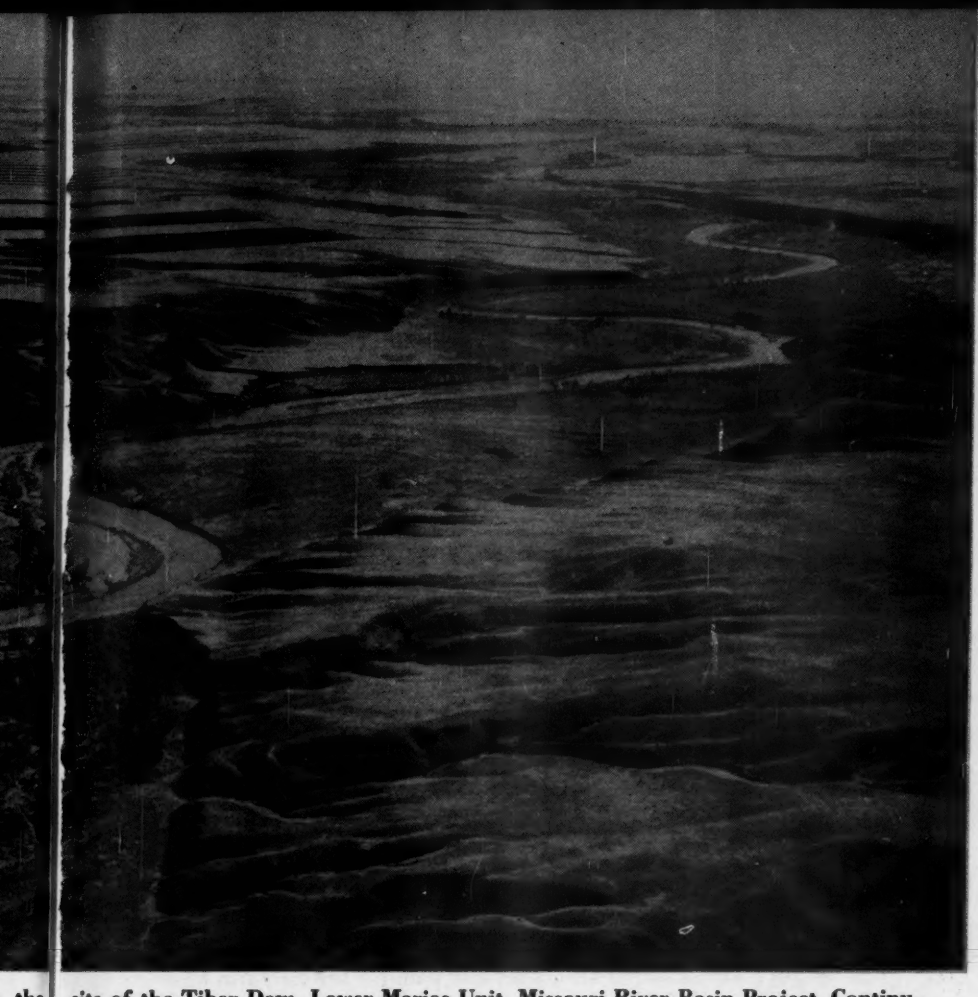
of Illinois

WRITING in the year 1907, Mr. George Fitch gave perhaps the most vivid description ever made of life along the Missouri River: "You never know whether you are going to harvest corn or catfish. . . . It is the hungriest river ever created. It is eating all the time—eating yellow clay banks and cornfields, eighty acres at a mouthful; winding up its banquet with a truck garden and picking its teeth with a big red barn."

In this picturesque language, Mr. Fitch has pointed up the reasons, equally valid today, why we must control the Missouri river. Let us take a recent example:

During the spring and summer of 1951 the Kansas river in the Missouri Basin went on its most violent rampage in history. Flood damage was estimated at up to a billion dollars. Forty-one human lives were lost. A million acres of

(*Continued on page* 8)



site of the Tiber Dam, Lower Marias Unit, Missouri River Basin Project. Continu-
Senator Cain. MVA would centralize all work on the Valley and therefore save

the
says

gin eer is proud to present two mem-
isc ussion of the important question:

uri Valley Authority?

NO! *Says*

Senator Harry P. Cain

of Washington

I AM a realist. I am against the Missouri Valley Authority legislation now pending in Congress because I do not believe its proponents have taken a realistic look at it. Let us proceed to do so. There are many serious objections to the plan.

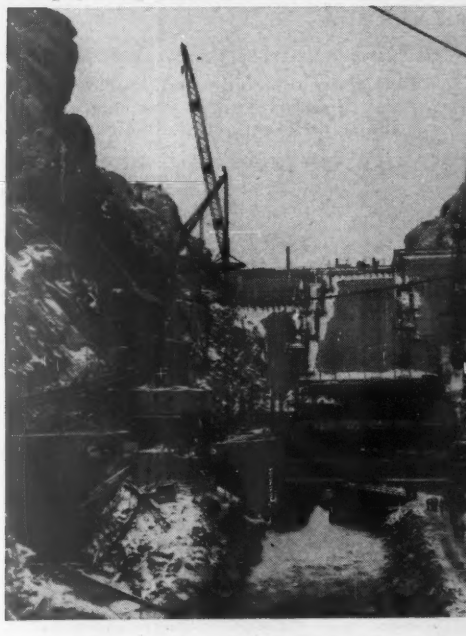
First and foremost looms the fact that none of MVA's proponents has faced up honestly to the issue of its cost. Before MVA is finished, it will have taken tens of *billions* of dollars out of the American taxpayer's pocket at a time when we have practically scraped the bottom of the tax barrel through. More about the cost later.

A second serious objection to MVA is that it is inflationary. It would put additional billions of dollars into circulation at a time when our defense obligations are forcing our economy ever nearer the runway stage.

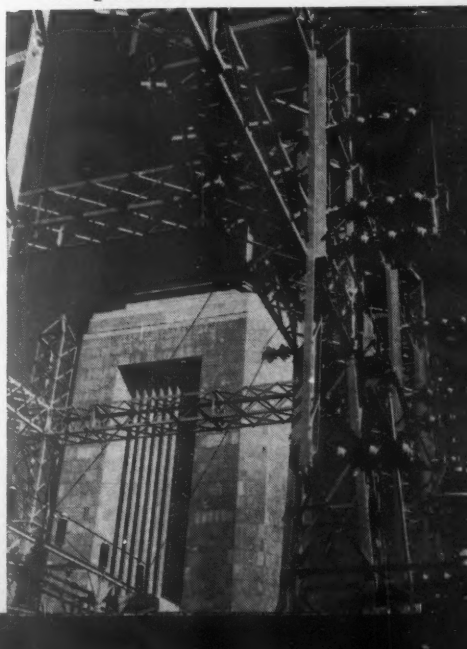
(*Continued on page* 9)

Senator Harry P. Cain

Below: **Projects such as the Kortes Dam and Power Plant will take billions out of the already hard-pressed taxpayer's pocket.**



Below: **No private power company can hold out long in the face of determined federal government, tax-free competition.**



Above: **Periodic dust storms have also taken their toll in the Missouri Valley. One agency could handle the Valley's many problems most efficiently, Douglas believes.**

Above: **Aerial view looking downstream from above spillway approach channel of Bonny Dam in the Missouri Basin.** ***Below:*** **Wheeler Dam, TVA. Private power groups oppose MVA — would rather deal with several agencies, Douglas feels.**

(*Continued from page* 6)

YES! At present we are pouring hundreds of dollars down a rathole in trying to finance an uneconomic navigation of the Missouri River.

farm land were submerged. Millions of tons of irreplaceable topsoil were washed away.

I take it that no responsible person believes we should do nothing to stop this waste. The price of inaction is too high to pay. As a practical matter, the choice before us is not now *whether* to do something about the Missouri Basin, but *what* to do about it and *how* to do it. To be even more specific, the choice before us is narrowed down to whether the Missouri Basin shall be developed along the general lines of the Pick-Sloan plan, by numerous federal agencies, or whether a Missouri Valley Authority or something like it should be established to provide and execute a single federal program as has been done in the case of the Tennessee Valley.

I am one of the co-sponsors of a bill which, if enacted, would create a Missouri Valley Authority. I do not, however, pretend omniscience in this matter and I hope that an investigation into our Missouri River policy along the lines suggested by Senator Hennings of Missouri will be carried out. At the invitation of the editor of the AMERICAN ENGINEER, I am happy to give my reasons why I believe, on the basis of information now available, that the MVA approach should be adopted. I believe that the reasons should especially appeal to engineers.

Two facts appear to me to loom large in our present plans for development of the Missouri River basin. (1) We are adopting an inadequate plan for the long-run best interests of the valley; and (2) we are going to pay a very high price for going about it in a wasteful manner. Let us examine the facts:

The Pick-Sloan Plan is so named because it is the composite of two plans. One was developed by Army Corps of Engineers under Lieutenant General Lewis Pick, Chief of Army Engineers, when he was a Colonel in charge of the Missouri River Division. The other was formulated by the Bureau of Reclamation under leadership of Glenn Sloan, a Regional Director. The Pick-Sloan Plan has already been approved by Congress. Prior to 1944, the year the initial authorization of Pick-Sloan was made by Congress, the two agencies were bitter enemies. Then the late President Franklin D. Roosevelt proposed that a Missouri Valley Authority be authorized, and the two former contestants joined forces to ward off a new contender in a celebrated shotgun wedding. Congress was induced to approve their joint plan.

THE plan is a loose one. In general, it is a composite of the two original formulas. The Army Engineers are to build most of the main stem dams for flood control *and navigation* purposes and the Bureau of Reclamation is to construct dams for irrigation, electric power, and other incidental purposes such as the conservation of fish and wildlife. Hydroelectric power development is included at many dams by the two agencies.

My objection to the Pick-Sloan plan is that the emphasis is placed on the wrong things. We are pouring hundreds of millions of dollars down a rathole in trying to finance an uneconomic navigation of the Missouri River up as far as Sioux City, Iowa while giving very little attention to other important phases of our orderly development of the valley. For instance, we do not know that there will be enough water for both navigation and irrigation.

(*Continued on page* 28)

(*Continued from page 7*)

It would put additional billions of dollars into circulation at a time when our defense obligations are pushing our economy.

NO!

Third, there is a serious question that, even if we did decide to pay the fantastic costs involved in going ahead with MVA in a period of ever-soaring construction costs, whether we could afford to spare the vital metals and materials necessary from our defense and civilian economies.

Every day we read in the papers of the critical shortages of materials, steel, copper, aluminum, and others. These shortages have forced even the military to pare down its requests for such materials. Civilian goods have been drastically cut back in many instances. Why impose another staggering materials burden on our already overtaxed economy?

I distrust the kind of thinking that calls for another government authority or commission to solve all of our problems for us. Undoubtedly, something must be done to control the Missouri River's floods, but, that something is already being done. Congress has already partially authorized a flood control program, the Pick-Sloan plan, which will be more than adequate to provide whatever protection is necessary. That plan is hardly more than in its infancy. Even it is fearfully expensive. Why not follow it through to completion before we commit more billions to MVA?

A fourth grave objection to the MVA is that it would have an adverse effect upon the local and state governments of the area, outshadowing them completely. An immense amount of taxable land would be removed from state and local taxation because the Federal government had acquired it. In many states and communities this is a serious matter. I am particularly sensitive to it because in my home state of Washington, 34% of the state's total land area is owned by the Federal government and is controlled in Washington, D. C. Property owners of 66% of the land literally foot the tax bill for a free ride by the Federal government's property.

Perhaps the most fundamental objection to the MVA legislation as it is drawn is the enormous power it gives the Authority over the lives, property and economic well being of the people who live there. Being a realist I know that Authorities are composed of human beings with human motives. Would I be unrealistic to say that some of these motives would be political? The Authority could make things mighty tough on anybody or anything—individuals, cities, counties or even state governments—within its bailiwick if it chose.

THE MVA legislation makes the Authority the virtual overlord of the river basin, giving it tremendous power over private property as an incident thereto. It provides for the development of federally-owned irrigable lands into farm units, not exceeding 160 acres (under certain circumstances farms may range to 240 acres). The Authority has the right to condemn private land for this purpose. It is not inconceivable that it would condemn the land of someone it did not like, improve it, and sell it to someone it did like. In both instances virtually setting the price involved.

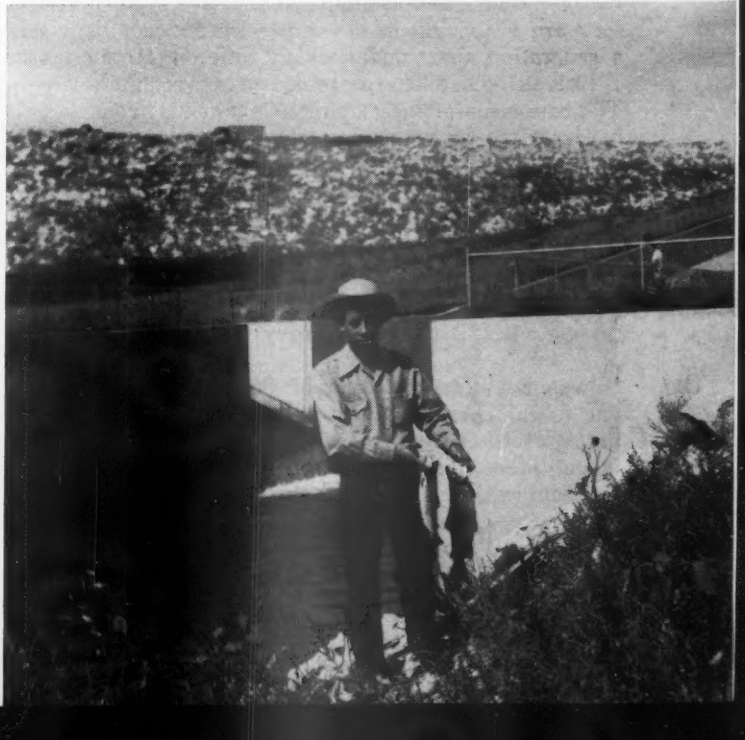
But here is the real joker in the irrigation provisions of the legislation.

The corporation is empowered to sell irrigation water to private land owners. But it is forbidden to deliver water to any land owner holding more than 160 acres of irrigable land until a public hearing has been held and the land

(*Continued on page 29*)

Above: **Estes Switchyards in the Missouri River Basin Project. Even if we decide to pay the fantastic costs involved in MVA, what about soaring construction costs, says Cain.**

Above: **Aerial view of the Upper Missouri Basin. Cain says the Pick-Sloan plan will be more than adequate to provide flood protection.** ***Below:*** **Fishing's good at Box Butte Reservoir in the Basin. What will MVA do to rugged individualism?**



BLUEPRINT FOR SUCCESS AS A CONSULTING ENGINEER

By David A. Heller,
Staff Writer

Have you ever thought of going into business for yourself? You probably have. Surveys show that most registered, professional engineers would like to run their own consulting offices if they could have their choice.

Continuing its series of informative articles, THE AMERICAN ENGINEER presents the case histories of two successful consulting engineers, a generation apart, who started from "scratch" and built thriving businesses. Here's how they did it, with advice for engineers who are considering setting up their own offices.

THERE are 160,000 registered, professional engineers in America. Only a small minority of these are in business for themselves, though surveys have shown that a greatly increased number would like to be.

There is increased discussion of the difficulty of an engineer founding his own firm. The risks are great and the amount of equipment and capital necessary are soaring ever higher. Can it still be done? Is the risk worth while?

To get some frank answers to these questions, THE AMERICAN ENGINEER prevailed upon two successful consulting engineers in Baltimore, Major Ezra Whitman of Whitman, Requardt and Associates, and Art Gompf of Egli and Gompf, to tell a candid story of their careers and to give frank advice to engineers who are interested in striking out on their own.

Engineers Whitman and Gompf were selected for several reasons: both are outstanding, both have been successful, they are practicing in the same city and got their start a generation apart under widely different circumstances.

Interesting parellels can be drawn between their careers. The consensus of their opinion is that it is considerably harder to found an engineering firm today than it used to be, but it can be done. If the founders aren't afraid of payless pay days, hard work and discouragement, it is still possible to make a go of an engineering firm under today's trying conditions. The rewards are well worth it, they believe.

Case History One

Ezra B. Whitman, dean of Baltimore engineers, and one of the most honored engineers in America (he's a past president of the American Society of Civil Engineers among other things) has led a colorful, exciting life and his engineering career has been fabulous. He started completely on his own. During World War II he had more than a thousand graduate engineers on his payroll.

If there is any single thing that can be said to mark Whitman's career, it is an uncanny ability to anticipate trends, to sense an engineering need that didn't exist before, get it on the ground floor of the new field, and then be one of the few people around with experience in it, when the need arises on a big scale.

From the days he was a senior at Cornell University's engineering schools in 1899, Whitman had his eye on a big job—building a sewer system for the city of Baltimore. In those days, Baltimore had no sewerage system. Private citizens used cesspools in their backyards. A few private sewers existed, but there were no public sewers. Needless to say, the situation was highly undesirable.

As a senior at Cornell, Whitman wrote his thesis on a proposed sewer system for Baltimore. He decided to go into sanitary engineering, then an almost brand-new field. "I figured that there was going to be a great project at Baltimore," he said, "and I wanted to be in on it."

UPON graduation from Cornell, Whitman went to England to study the sanitary engineering systems of that country which then led the world in the science. Back in the United States, Whitman and another engineer opened their own offices as sanitary engineers in New York City. Both were only 21 years old, but they were already experts in the infant science. "At least we knew about as much about it as almost anybody else," he said, "although to be frank with you it wasn't much at the time."

The office prospered from the first. Small towns and institutions in New York, Pennsylvania, Texas, Ohio, Tennessee, New Jersey, and Massachusetts flocked to the young engineers for advice.

Whitman's spirit of initiative was evident from the first. He took courses in bacteriology and chemistry and made experiments with the bacterial purification of sewerage. He set up his own laboratory and did experimental testing of sewerage and water. Some of the first experiments in treating sewage with chlorine were done under his direction.

While still in New York, he tried to purify packing-house wastes at the request of Swift & Company and other meat packers. It was one of the few things he was unsuccessful at. "We did some good, but not much," Major Whitman recalls, "it wasn't until many years later that the technique of activating sludge, now used in Chicago, solved the problem."

After he had been in New York less than five years, the City of Baltimore finally got around to constructing a sewer swstem, the last major city in the United States to do so. Whitman, at the ripe old age of 25, put in an application for the job of Chief Engineer. He didn't get it, but he did get the next most important job, Division Engineer in charge of sewerage treatment. Whitman stayed with the project until 1911 when it was almost completed. (It was finished in 1912.) He played a leading part in the construction of Baltimore's excellent sewerage system.

One day while on the job, Whitman received a visit from the Mayor of Baltimore. "Young man," he said (Whitman was 30 then), "I'm running for reelection this year and if I make it, I am going to appoint you water engineer. The city needs a new water filtration plant."

The Mayor lost, however, and Whitman thought his chances had disappeared. He got a surprise. Shortly after the new Mayor was sworn in, he sent for Whitman and assigned him a complex water engineering problem and told him to solve it. Whitman went out, collected data, sweated over it, and came back with an answer. He turned it over to the Mayor.

A few days later, the Mayor sent for him. "I'm making you our water engineer," he said. "I had your work checked by one of the best firms of consulting engineers in the United States. It will be your job to design and build Baltimore's filtration plant, a new Lock Raven dam, pumping stations and revamp the system of water mains."

As water engineer, Whitman did a lot of engineering innovating. He was one of the first engineers to use reinforced concrete pipe in connection with water mains. He constructed two mains, one nine feet in diameter, the other seven feet in diameter which were concrete reinforced. Prior to that time, while with the Baltimore Sewerage Commission, tank walls of the gravity type, six or eight feet thick at the base, were designed. Whitman felt that the reinforced concrete would save space and money. He checked with other designing engineers with the Commission. None of them would oppose his scheme, but none of them would lay his neck on the line and endorse it. Whitman went ahead anyway.

"If I had been older and wiser, I probably never would have tried it," he said. "There were no books in those days that were much help. So we just went ahead and fortunately it worked.

"They say of jobholders that few die and none resign when they have good jobs," Whitman remarked, "but in 1914 I resigned from what was one of the best engineering positions in Baltimore.

"There were all kinds of rumors about my resigning. Some people said it was because I had had a fight with the Mayor. Others, not so charitable, said that I must have had a shortage in my accounts. Nobody believed that I had just resigned to join a consulting engineering firm, which was my reason.

"It was very interesting. Politicians who formerly would rush across a crowded street to shake my hand began to shun me. For about two weeks I had an opportunity to find out who my real friends were. Then all the wise guys were astounded when the Mayor appointed my firm consulting engineers to the city. Of course, all the politicians began to shake my hand again. It confirmed a feeling I have always had about politicians, however, that they are interested only in the officeholder, and not the man."

Art Gompf

Major Ezra Whitman

Taking chances paid off

After a two-year period in a firm with John E. Greiner, Whitman formed the new firm of Norton, Bird, and Whitman in 1916. Shortly afterward, he was called into the Army as a major. There he acquired the nickname "Major" Whitman, which has stuck ever since.

In 1925, Whitman formed a new firm, Whitman, Requardt and Associates, which is a leading engineering firm today. In 1921, at the request of the Governor of Maryland, Whitman was pressed into the first of a series of important jobs. He went on the Public Service Commission. It was a valuable experience. He learned a great deal about public utilities rate cases. He did not know it, but this experience was to save his firm during the depression-bound 1930's. In the early 1930's, the utility companies found themselves in all kinds of involved legal proceedings regarding their legal rates. They looked around for an engineering firm that had experience in this kind of work and found—Whitman, Requardt and Associates.

In those moribund days, when most engineering firms were having a tough time, Whitman, Requardt and Associates were in the enviable position of having experience in a field where the demand was great.

Whitman had another term of public service in 1939. Governor (now United States Senator) Herbert O'Conor asked him to become Chairman of the Public Roads Commission. Whitman agreed, with the express stipulation that he was not to stay long, only long enough to help the State of Maryland whip up a program for its antiquated highway system.

The war came along in 1941, and Whitman could not quit while the war lasted. "It would have been like deserting in the face of the enemy." Finally, in 1945, after the Japanese surrendered, Whitman went to the Governor again and asked to be relieved. In November, 1945, he finally left what was to have been a short term job as head of the state's highway system.

World War II saw a fantastic expansion of the firm of Whitman, Requardt and Associates. At the time of Pearl Harbor, 21 engineers were on the payroll. Then Whitman got a call from his old Army Commanding Officer of World War I, who was now a general. The general wanted to know if his firm could do some war work. Before Whitman's firm finished a thousand people, mostly graduate engineers were on the payroll. They built the $27-million-dollar Edgewood Arsenal, several other bases for the Army Chemical Warfare Service, and worked also for the Army Air Force, the Navy and the Marines.

The Major estimates that Whitman, Requardt and Associates did over $150 million dollar's worth of construction during the war. High military officials commended the firm for making a substantial contribution to the war effort because of its efficiency.

What advice does Major Whitman have for engineers who aspire to open their own offices?

"Get into some *new* field," he says. "If I were a young engineer today, I'd get into television, electronics, or nuclear engineering, because these are new and expanding fields and one could become an expert while still young.

"This whole matter of going into private engineering practice is a lot harder today than it was when I was starting out fifty years ago," he remarked. "Work is a lot more specialized today.

"However, the engineer who is really willing to work hard and puts his work ahead of pleasures will go to the top. He can't fail. Keeping him down is like trying to keep a cork under water. It can't be done.

"My advice to any engineer who wants to go on his own is to study hard and intelligently, whether he's in school or on an engineering project. If he makes himself an expert in a particular field, if he tries to find out what has been done in that field *and then tries to do it better than anybody else*, he'll get along all right."

Case History Two

ARTHUR GOMPF, immediate past President of the Maryland Society of Professional Engineers, is 43 years old. He was born in Baltimore and practices there because he loves the colorful old city. He is registered in both Maryland and West Virginia.

"After graduating from high school, I wasn't financially able to go to college and satisfy my ambition for an engineering education," he said. "So I went to work for five years, to gain some experience and to save some money.

"It was during this period that I first met and worked for the man who was to become my future partner, Huldreich Egli, in his consulting engineering office. From him I gained a specific interest in the mechanical and electrical engineering field.

"During this period it was possible for me to attend night school and I took courses in accounting and commercial law. These have proved very valuable in the operation of our office and I can recommend them to any engineer contemplating entering private practice.

"After graduation from the Engineering School of the Johns Hopkins University in 1934, I found that opportunities in the consulting field, in fact, in most engineering fields, were nearly non-existent.

"Short on cash and long on obligations, I felt lucky to land a job with an oil company and to have a chance to learn something of fuels and lubricants. For nearly four years, however, my sights were still aimed at having my own consulting practice, and in 1937, with some cash in hand, I decided to make the break.

"Once again, as I had many times before, I discussed my hopes with my good friend and valuable guide, Huldreich Egli, who, incidentally, is an enthusiastic NSPE member. In spite of six or seven difficult depression years, his confidence in the future was strong, so strong that he proposed a combined venture later formed as a corporation, Egli and Gompf, Inc. Obviously, this provided a most unusual opportunity for me to join a man, 25 years my senior, with a wide and varied experience.

"For the first two years, the consulting engineering field, still torn by the depression, offered little compensation. With little cash but still much hope, our first big break finally came in late 1939. We got a contract to do the engineering work for a 600 dwelling unit slum clearance project in Baltimore called the Gilmor Homes.

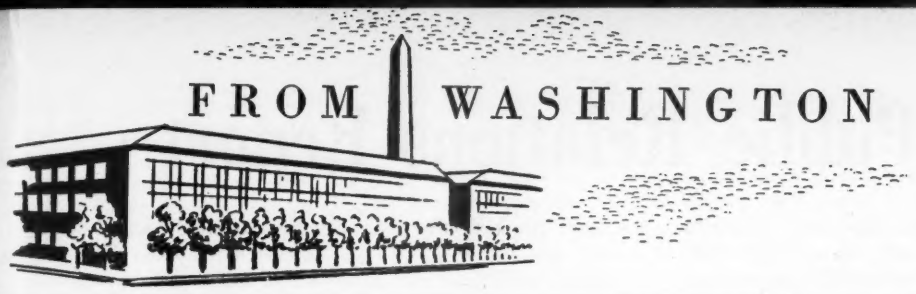
"Much of the work our firm has done since then can be traced, directly or indirectly, to the friends and contacts we made in designing the mechanical and electrical installations for this single project.

"Incidentally," Mr. Gompf continued as an aside, "I was interested in reading your article about the value of personality to an engineer in *The* AMERICAN ENGINEER. In the consulting field I'd say that a good personality is absolutely essential—at least as important as technical engineering knowledge.

"To take a specific example, in our own office we find that traits of personality vary to such an extent that some of our engineers can deal with all clients with ease. Others can deal

(*Continued on page* 25)

Below: **Two views of a project recently completed by the firm of Egli and Gompf, Inc., of which Arthur Gompf is a member.** ***At left:*** **The new Sunpapers Publishing Plant.** ***Right:*** **A front view of the new G. E. Electronic Press Control Board for 32 press units and six folders.**



FROM WASHINGTON

By
Arthur R. Woods,
N.S.P.E.'s Legislative Analyst

ALTHOUGH THE FIRST SESSION OF THE 82ND CONGRESS was at one time called a "do-nothing" Congress, the close of the Session found a considerable amount of major legislation accomplished. Despite this fact, when the Second Session convenes on January 8th, 1952, it will be confronted with a great amount of work yet to be done.

DEFENSE ACTIVITY in all its ramifications is still the principal Congressional concern. Since the activity of engineers touches almost every conceivable aspect of defense, most of the major legislation to be worked with will have some implications for engineers. The proposed Great Lakes-Saint Lawrence Seaway, for example, has such implications. Defeated many times in committee, administration support for this project is such that the question will almost certainly be brought to a floor vote in the forthcoming session. **Opinion on the merit of the Seaway is so divided that the vote should be close.**

ANOTHER CONTROVERSIAL PART OF THE ADMINISTRATION PROGRAM—FEDERAL AID TO EDUCATION—is also scheduled for consideration. This proposal and the administration-supported federal civil rights program likewise will meet strong opposition. The President will almost certainly ask for **improved tax laws and for a stronger controls law.** In both cases he will find dissidents in his own party as well as in the opposition ranks. The entire picture, of course, will be complicated by the November elections, and the Second Session promises to be even more mercurial and unpredictable than the first.

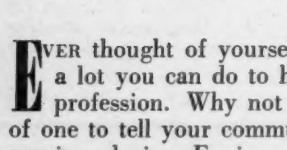
OF SPECIFIC INTEREST TO THE ENGINEER WILL BE THE ARMED FORCES RESERVE BILL, which will be considered by the Senate early in the Session. The bill as it now stands has the approval in principle of both the reserves and the regulars, and is a good bill except for one omission. There is no provision made for the evaluation of the relative requirements of the military and the supporting civilian defense effort for scientists and engineers. **There is no safeguard for the appropriate assignment of scientific and engineering personnel within the Armed Forces.** There is no provision for the release of such persons when the civilian defense economy needs outweigh the needs of the military. Those who know the rôle played by the scientist and the engineer in the defense effort, and those who remember some of the difficulties which arose during and after World War II will appreciate the need for modification of the bill. Efforts are being made to call the attention of the Senate Armed Services Committee to the desirability of timely action to establish policy for the effective use of our scientific and engineering manpower resources.

THE HOOVER COMMISSION RECOMMENDED BILLS which have not as yet been considered will be strongly urged upon the Congress during the Second Session. Their chance for passage becomes measurably less if they are not dealt with in the coming year. Among these bills are two of immediate interest to the engineering profession. One of them creates a Board of Impartial Engineering Analysis for all federal engineering projects to report on the propriety of proposed projects, and their economic feasibility and benefit to the public in terms of the cost involved. **The other transfers the civil functions of the Corps of Engineers to the Department of the Interior.** Primarily because of political considerations, the bill creating the Board of Impartial Analysis appears to have the best chance of passage.

MORE ACTIVITY OF SPECIFIC INTEREST TO ENGINEERS WILL BE FORTHCOMING FROM THE SALARY STABILIZATION BOARD. This Board recently issued its promised regulation for employed engineers. By its terms, employers of engineers, heretofore prohibited from doing so under salary controls, in appropriate cases may now give **additional compensation for overtime work.** The Board is still struggling with the problem of how best to provide for a differential between recent employees and those who have longer tenure.

NSPE's Public Relations Report

EVER thought of yourself as a publicity man? There's a lot you can do to help publicize yourself and your profession. Why not constitute yourself a committee of one to tell your community about engineers and engineering during Engineers' Week? Read the "straight dope" about your society's public relations program.



NSPE's Public Relations program is accelerating to a sharply increased tempo with the advent of "Engineers' Week," the near-release of the report on its first Executive Research Survey, "How to Improve Engineering-Management Communications," and the almost complete formulation of its second questionnaire, "The Improved Utilization of Engineering Manpower."

Additional publicity is also being obtained for articles appearing in the AMERICAN ENGINEER and in connection with the visits of National Officers to local chapters.

All this is aimed at accomplishing only one thing—bringing to the attention of the employers of engineers and the public at large the myriad important contributions to their welfare made by the registered, professional engineer.

This is important to you, for it directly affects *your* welfare—your economic status and your prestige among men.

Take a specific example of what we mean. Readers of the AMERICAN ENGINEER will be interested to learn that General Brehon B. Somervell's article in our last issue calling for a return to "the engineering type of thinking" was considered important enough by the Associated Press, United Press and International News Service for each of them to syndicate a story about it.

Virtually every newspaper, radio station and television station in the United States got an account of General Somervell's article in the December AMERICAN ENGINEER. Hundreds of them used the story.

We particularly like the conclusion of the United Press version of the article, as reported in the *New York Herald Tribune*:

"The antidote," (for our national difficulties) General Somervell concluded, "is for the nation to *'turn to the engineering type of thinking . . . the realistic, constructive kind that faces facts . . . recognizes facts for exactly what they are . . . and utilizes facts alone in working out its projects'*."

We believe that it is a good thing for engineering to have that idea brought to the attention of several million persons.

We have found that people are enormously interested in engineers and engineering—when their activities are described on a level sufficiently simple for them to understand.

This is a short progress report on NSPE's public relations program which got underway in 1951. Members will recall that the Board of Directors authorized an appeal for funds to the membership in October of 1950. Such an appeal was made in the early part of the last year and a fund of some $30,000 was raised.

The fund-raising preliminaries out of the way, the question was—how should the money be used? There were at least a half-a-dozen approaches to the problem of public relations for the Society, all urgent and all promising. To avoid chasing illusory goals, a top-flight public relations firm was retained to survey the Society's needs and to recommend the most promising manner in which the funds raised could be used.

After due consideration, it was decided that the group the Society was most interested in making aware of the value of professional engineers was the employers of engineers, both on a salary and a consulting basis. It was, the public relations firm said, impossible to level an effective campaign toward everybody we would like to impress with so limited a fund as $30,000 due to the fierce competition for newspaper space and radio time.

To produce a public relations program of value to both registered, professional engineers and their employers, something that the Society could be proud of, the device of conducting a research program in four areas of important relationships between engineers and their employers was decided upon. The first report should be made public within a month to six weeks.

A major step in accomplishing the aims of the public relations program came with the appointment of the Engineers' Conference Board for Industry. Made up of prominent engineers in all branches of industry, it is in charge of formulating the questionnaires and supervising the writing of reports from the completed questionnaires. The stabilizing influence of these practical engineers is felt to be the best means of keeping the surveys and findings on a down-to-earth, helpful level.

The preliminary report of the first Executive Research Survey has already been written and will shortly be mailed to members of the Engineers' Conference Board for Industry for their review. When these have been made, copies of the report will be mailed to the trade press, to magazines, newspapers, schools and libraries all over the nation.

You have probably never thought of yourself as a publicity man, but there is often a lot that you as an individual member of NSPE can do to help publicize your profession. A good example is the help given the Engineers' Week publicity program by NSPE member R. E. Baird, Chief Engineer of radio station KWSC at Pullman, Washington.

Mr. Baird has volunteered to make tape recordings at cost for the "Dream Builder" radio script in the Engineers' Week publicity kit from the facilities of his organization. Through the good offices of Engineer Baird, more than 60 recordings of the script have been made and sent to individual chapters throughout the country for use during Engineers' Week.

In connection with Engineers' Week, it should be noted that for the celebration to be really effective, support must come from every chapter and every individual member. For example, will there be one of the handsome posters telling the facts about Engineers' Week, with a picture of George Washington and the slogan "Engineers for Defense" on the bulletin board of your place of employment? Why not constitute yourself a committee of one to see that it is? Write to the NSPE national headquarters, 1121 15th St., NW, Washington, D. C., and ask for a free poster. Better yet, why not see that all of the bulletin boards in your plant are covered?

What kind of a celebration will there be in *your* home town? Will there by publicity about engineers in *your*

newspaper? To get the utmost benefit from Engineers' Week, it must receive the full support of its members, and that includes you. You will want your friends, fellow-workers and neighbors to read and know about Engineers' Week. While there will be a considerable amount of national publicity, to be most effective "Engineers' Week" will have to receive local publicity, too. Volunteer to help the publicity chairman of your Engineers' Week committee make publicity in your town effective.

Even if you only "talk up" the fete among your friends and fellow engineers, including those not members of NSPE, you can do a lot to make the aims of the celebration become realities.

National publicity for the occasion includes "plugs" on radio and television network shows, a syndicated newspaper feature article, mention in advertisements in national magazines, local radio and newspaper publicity, posters in places employing engineers, speeches, proclamations, and editorials.

Telling one's story to the world in a dignified, yet effective way is a necessity for any organization or individual who wants to progress today.

One of NSPE's Public Relations staff was discussing Engineers' Week with a prominent industrial public relations counselor recently.

"Engineers' Week is an excellent promotion," the counselor said, "but I hope you realize that it has a serious drawback connected with it."

"What is that?"

"The danger that your members will think that the public relations job is all done—finished for another year when Engineers' Week is over."

The counselor had a good point. Effective public relations is not a spectacular, one-shot performance, although such large-scale promotions help. It is a steady, long-term effort to put a planned program into effect.

To be specific, let's consider such a prosaic matter as chapter meetings. An advance notice of *every* chapter meeting should be sent to *every* newspaper in the chapter's area at least two or three days before the meeting, earlier if possible.

In the larger cities, where competition for newspaper space is especially keen, these notices will not always be printed, but they will be printed some of the time. In huge cities, neighborhood papers should not be overlooked as a source of publicizing chapter events. Such papers often reach audiences far larger than the biggest newspapers in a small city.

Chapter events which have a wide public interest, such as the speech of a prominent civic official, should be written up and reported at once to the newspapers.

A splendid example of the kind of thing which individual chapters can do in making their members public relations conscious (and incidentally, be of great personal value to the individual engineer-participant) is the setting up of a Speaker's Bureau by the Pittsburgh Chapter. The chapter's announcement tells the story best:

Recognizing that Effective Speaking is a necessity in the practice of Engineering, in the advancement of the individual Engineer and in the promotion of the Engineering Profession, the Pittsburgh Chapter, Pennsylvania Society of Professional Engineers, in co-operation with the Carnegie Institute of Technology, has established a Speakers Bureau for the purpose of aiding members of the Engineering Profession to become Effective Speakers.

The Speakers Bureau, organized as a club governed by officers and directors elected from among its own members, is being maintained by the Pittsburgh Chapter, PSPE and Carnegie Tech as a service to all members and senior students of the Engineering Profession. Membership is open to any Engineer or to any senior student enrolled in a recognized school of Engineering.

A Staff of experienced speakers is being selected and will be called upon to speak before social, civic and educational groups on subjects pertaining to Engineering.

The following is a Schedule of Meetings for the first half of 1952:

TOPIC FOR DISCUSSION	SUBJECT FOR SPEECH
Eliminating Worry.	The Most Humorous Experience of My Life.
Overcoming Fear.	What's Wrong With Engineers.
Audience Attention.	Engineering and the Common Man.
Speech Barnacles.	Science, Engineering and Industry.
Gestures.	Why I Chose To Be An Engineer.
Planning the Speech.	Should Engineers Register?
Forceful Words.	Is Engineering a Profession?
Strong Sentences.	Ethics in Engineering.
Commanding Tone.	The Engineers Registration Act.
Compelling Action.	The Nat'l Society of Professional Engineers.
Timing for Effect.	Why Belong?
Banquet.	Special Assignments.

Another important way you can help publicize the aims of your Society is through participating in the second research survey on "The Improved Utilization of Engineering Manpower." Clip out the coupon at the bottom of this article and mail it in today.

To Join the second PR Research Project — Fill Out this coupon!

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or *print* on BOTH

the name and

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NATIONAL SOCIETY
OF PROFESSIONAL ENGINEERS
1121 FIFTEENTH STREET, N.W.
WASHINGTON, D. C.

To _____

2nd Questionnaire

NATIONAL SOCIETY
OF PROFESSIONAL ENGINEERS
1121 FIFTEENTH STREET, N.W.
WASHINGTON, D. C.

To _____

2nd Report

Ring Out The Old!
1951

1951 Memorabilia:

A highly-respected leader of the engineering profession recently stated, "The year 1951 has been a good one for the engineering profession." When asked to elaborate upon his sweeping statement, this outstanding professional man said, "Although the profession made great strides throughout the last two or three decades in a technical sense, our progress professionally has been at a snail's pace. We tried to promote registration. We tried to tell the general public more about the accomplishments of the engineering profession. We tried to create better courses of study for engineering students. We tried these and many, many other things to make the engineering profession a greater one, but progress was slow. But it seems to me that during 1951 our efforts bore fruit. It seems to me, in retrospect, that 1951 showed real progress for all of us."

Now as we move into a new year, it seems appropriate to take a backward look at the engineering profession during the last twelve months. Yesterday is too often forgotten, and maybe a look at these recent yesterdays would be both interesting and profitable.

Beginning with January, 1951, the big news in NSPE, and the profession generally, was the newly-announced Public Relations Program of the National Society. After authorization by the Public Relations Committee, the Society went to its members and asked for contributions toward a public relations fund. January was the beginning of this campaign and hundreds of dollars began to come in from all corners of the United States. It was soon clear that thousands of professional engineers across the country were ready to get behind a public relations program that would tell the users of engineering services more about the professional, registered engineer and the work he does.

The engineering shortage was big news. It was a critical problem at that time, and continued to be a critical one throughout the worrisome year, 1951. There were many suggestions upon what to do about the engineering shortage. These included deferment from college, better utilization within industry, importation from foreign countries, and many others. The complex question was never solved completely, but as the year advanced, some progress was made in using engineers more wisely.

As winter wore on into early spring, many important sociological problems faced the engineering profession. Many great engineering minds were at work attempting to solve such pressing situations as the growing lack of iron ore in the United States. A situation that could tremendously affect the future of the engineering profession, the lack of iron ore drove many of our best minds to careful study of the situation. The St. Lawrence Seaway Project came in for much discussion, and, as a matter of fact, was the subject of a debate at the Annual Meeting of the National Society later on in June.

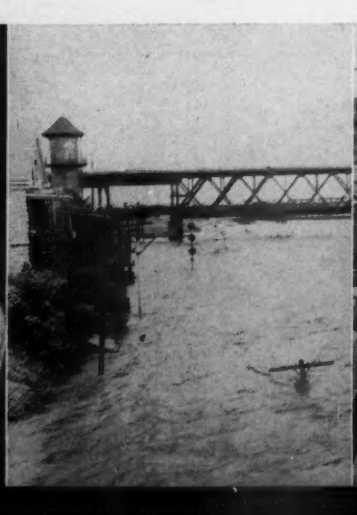
Spring arrived, and the Presidents of NSPE's State Societies convened in Washington for their Annual State Presidents' Conference. The theme of the Conference was "National Defense," and particular attention was paid by the Chief Executives to the current manpower problem, with emphasis on proper utilization of technical personnel. In order to better understand the entire emergency more thoroughly, the Presidents spent the first day of their confab at the Pentagon, as guests of Secretary of Defense George Marshall.

The registration of engineers continued its huge strides toward making the engineering profession a true profession. Dean M. W. Dougherty, Dean of Engineering of the University of Tennessee, summed up the object of engineering registration by saying, "Registration is to protect the public against incompetence; and incidentally, to protect the practitioner from incompetence. If incompetent practitioners undertake work which engineers normally do, the public is involved and often put in jeopardy."

Along with the growth in registration, followed the growth of NSPE as an effective Society. In the spring of 1951, 26,000 engineers had become members of the Nation's only Society devoted strictly to the professional aspects of engineering. Other professional news included much discussion on the problem of professional unity. Unity discussions by the major societies had held the interest of all engineers from the beginning of the year, and Past President Alex van Praag, NSPE's representative to the conference on unity, kept his Society informed of latest progress. Although progress was slow, it was being made.

NSPE-wise, the Annual Meeting in Minneapolis in June was the most important event of the summer. Civil Defense was also an increasingly important topic on the profession's agenda throughout this period. In many communities professional engineers volunteered their services to their local CD

Pictured below are some representative shots of major activities in which the profession participated during 1951. They are, left to right: The furnishing of technical services to foreign countries; the Kansas-Missouri flood sharply brought the problem of flood control to the profession's attention; and stepped-up military production called for increased engineering skill in all phases of production.



Engineering Profession

organizations or entire NSPE Chapters devoted themselves to such projects as shelter surveys, and the estimating of possible bomb damage to various structures.

The profession, as well as the Nation, was beginning to feel more than Jack Frost's pinch as Indian summer blended into football weather. Controls on building materials and material shortages became a familiar part of the national scene. In many industries, the new allocation of materials changed the pattern of previous engineering work. Flood control became an important subject among members of the profession as well as laymen arm-chair engineers with the advent of the disastrous Kansas-Missouri flood.

Scrap drives became more intensive as dire warning issued from Washington telling the Nation that steel mills might have to close down on vital defense production if these valuable metals could not be obtained. Professional engineers did, and are doing, their share in seeing that this important project is carried out in their plants and factories. For the profession, the year ended on a saddened note, however, with the word that Dr. Henry Garland Bennett, administrator of the Point Four program, had been killed in an airplane crash near Tehran on Christmas Eve. This remarkable man, uncommon in his simplicity, represented American friendship toward foreign countries at its best.

A brief resume of the year, then, shows the engineering profession facing and meeting four demands: 1. Military production had to be increased and maintained while civilian production had to be continued at its usual high standard. 2. Professional engineers were called upon to serve in the Armed Forces and assist in the development of new engineering techniques and production methods for military use. 3. Civilian services such as sanitation, communication and construction had to be maintained, and 4. With the general increase in American aid abroad, engineers were called upon to give more and more of their services to this vital project.

1951, then, has been a year in which the engineering profession has been asked to serve in many capacities, and has given freely of its talents wherever called upon. Much remains to be done in the building and maintaining of a strong, free America, however, and the professional engineer can look forward to increased service in 1952 and the years that will follow.

Ring In The New!
1952

The Call For Duty

A Message From

L. L. DRESSER, P.E.,
President, N.S.P.E.

It is appropriate at Holiday Season this year to review the year just passed, and to give thanks for the opportunities it has offered us, for the health and happiness that has been ours.

Looking back, we find that we owe so much to so many. We owe a debt to countless numbers of those who in generations of the past have contributed to our present comfort and enjoyment, to those who pioneered and cleared the rugged paths that have made our highways of life easier and more pleasant. We are obligated to the engineers, the inventors, the scientists, the medical men, to industry and to many others who have struggled to bring about better living.

Then, too, we have a deep obligation to those who at this moment are sacrificing themselves in the effort to stabilize a world peace.

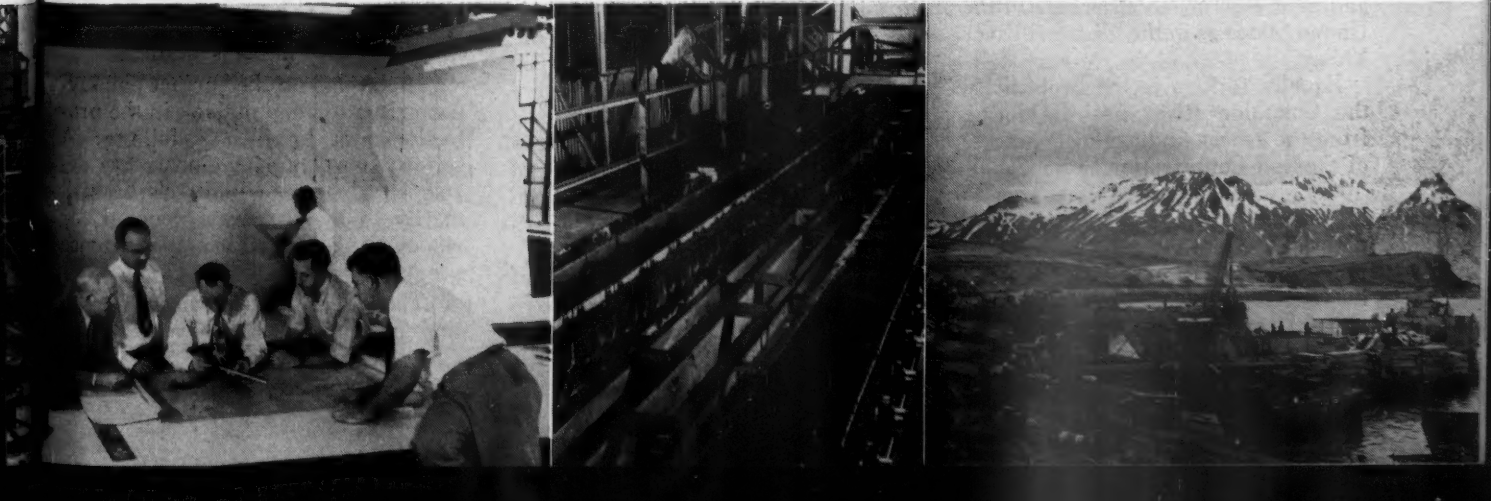
It is a time when we should stop to consider our individual part in this all important matter. Industrial production, military strength and national health depend to a large extent upon the contribution of service which we as engineers are able to make. Much will depend upon our ability to obtain a maximum utility of materials, as well as manpower.

In the coming year every engineer, without exception, should devote himself to the larger aspects of our profession by assuming additional responsibilities with industry and our governmental endeavors. This can be accomplished by doing a better job of economics, by combining engineering know-how with management, and by promoting and seeking better relations between employers and employees.

Let us resolve, therefore, that during 1952 we will do our utmost to repay our debts by accepting the overwhelming challenges of the present critical times. We can do this if we will think of services to be performed before we think of ourselves. Then, by payment of these obligations we will receive a compensation not found in the pay envelope, a compensation of esteem and honor, gratification and good will by those whom we serve.

May 1952 be a year that will long be remembered as a year of unselfish service beyond the call of duty by the professional engineers of America.

Other topics which were definitely in the fore profession-wise in 1951: left to right: what could be done about the proper utilization of engineering manpower in industry?; civilian production must be kept at a continuing high rate in the face of our expanding economy; and engineers in the Armed Forces—were they being used in accordance with their professional training?



HOW GOOD IS FLOOD CONTROL?

The recent flood disaster in the Middle West tops off a decade of unusual flood events scattered throughout the world. Now, the thoughts uppermost in the minds of the public are: How good is flood control? Does it really control floods?

The answer: We expect too much from it.

We teach our Boy Scouts to pitch tents on high ground where flood waters cannot overtake them; but their elders build their factories, homes and cities on any low, flat ground—although it may have been subject repeatedly to overflow by great floods. Then they rely on their Congressmen to see to it that government engineers save them from overflow, *at the expense of the public purse*. Some cities wisely have established flood zones within which no buildings are permitted, but what of towns built for the most part on low ground?

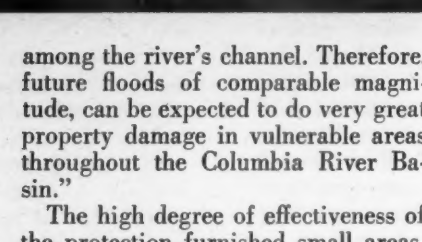
The term "flood control" has misled the public, as well as the authorities charged with providing protection against overflow, into the belief that these words imply *complete control*, that is, permanent protection under all conditions. The experience records in this country, and the much longer experience records abroad, demonstrate that permanent and complete control can rarely be achieved for either physical or economic reasons.

It does not seem to be generally understood that river channels were not meant to carry flood flow. In Nature's plan, the world over, the place for flood waters is on the flood plains. This is fundamental in any considerations affecting flood control, and applies as much elsewhere in the United States as in the Missouri River Valley.

Equally serious is the problem in the Columbia River basin. Quoting from the recent findings of engineers of the Soil Conservation Service:

"The damage in 1948 was due to Man's encroachment upon the flood plain of the river in the course of 54 years, which have shown a flourishing development of industrial, commercial, and agricultural enterprise among the river's channel. Therefore, future floods of comparable magnitude, can be expected to do very great property damage in vulnerable areas throughout the Columbia River Basin."

The high degree of effectiveness of the protection furnished small areas, as for instance the cities and industries in the Miami River valley of Ohio, has created the erroneous impression that similar treatment can be provided for large projects elsewhere.



Although the Miami Conservancy District work has been successful, it does not provide a useful pattern for large-area projects, because of its distinct limitations, chief of which is the absence of gates on its retarding basins. There is no control over outflow from the district's dam in emergencies, as when the Ohio River, into which the Miami River empties, should be at a critical stage. Also, inability to flush out the river channels below the dams permits tributary sediments to accumulate in them and these require removal by dredging.

There is a persistent belief that elimination of the flood menace through costly flood-control work is essential to the prosperity and continued growth of communities. The facts do not support this belief. Severe inundations, like great conflagrations, halt growth only temporarily. Many towns have grown into important and prosperous cities despite repeated invasions by water. Pittsburgh is a conspicuous example.

There also is a widespread lack of appreciation of the magnitude of even a conservative plan of flood control and of the time that will be required to provide many regions with a reasonable amount of protection. The cost is going to be so great that Congress must plan to spread the work yet to be done over a period of many years. Hence there will be many regions that will get only partial protection during the years just ahead even under the current programs such as the one now being carried out under the Missouri Basin Inter-Agency Committee.

Coming back to the question asked in the opening paragraph, "How good is flood control?" certain conclusions are inescapable:

So long as people continue to establish homes or industrial plants in the natural pathways for flood waters, especially when there is high ground near by—as at the two Kansas Cities—and so long as they are permitted to encroach on river channels for lack of city, state or federal laws to regulate such actions, so long will flood control remain ineffective and independable. The drain on the U. S. Treasury for flood control, though technically a public necessity, is hard to defend until some common sense is instilled into the basic conception of flood control.—*Gerard H. Matthes, Consulting Engineer, Engineering News-Record, November, 1951.*

DOUBLE TAKE FOR BUREAU OF LABOR STATISTICS

A fresh study of the employment situation in the major fields of engineering has recently been issued by the Bureau of Labor Statistics of the U. S. Department of Labor, entitled "Effect of Defense Program on Employment Outlook in Engineering."

Among the Bureau's findings are:

"Highlights on the current employment situation and outlook in the profession are, briefly, as follows: A serious shortage of engineers has developed since mid-1950, owing primarily to the increased demand for personnel generated by the defense program.

"There has been a tenfold expansion in the profession over the last

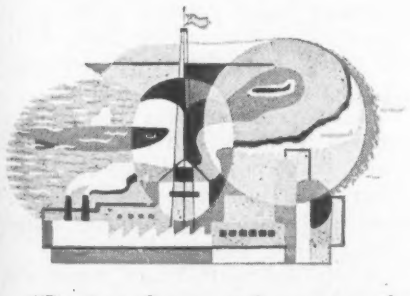
half century. During the past decade alone, the number of engineers employed is estimated to have increased by about two-thirds (from 245,000 in 1940).

"All major branches of engineering have shared in the profession's growth but the expansion has been more rapid in some branches than others. Mechanical engineering is now the largest branch, with nearly 40 per cent of the profession's members. Civil engineering, which was the largest branch prior to World War II, has dropped to second place, with about 25 per cent of all engineers. The proportions employed in the other major branches of the profession are estimated to be as follows: electrical, 20 per cent; chemical, 10 per cent; and mining and metallurgical, about 5 per cent.

"Altogether, about three-quarters of all engineers (300,000) are now employed in private industry. Some 90,000 work for government agencies, Federal, State and local. About 10,000 are in educational institutions.

"Though an exact estimate of the number of new graduates required to meet both defense and civilian needs cannot be made on the basis of the available information, the average annual demand during a prolonged partial mobilization would probably be at least 30,000.

"In addition to replacing men who die or retire, this number of graduates would provide 21,000 to 22,000 engineers annually to fill new jobs and make up for any transfers into it from other fields. It would make possible a fairly rapid growth in the profession, both in absolute numbers and relative to the total number of engineers now employed in the country (estimated at over 400,000).



"During the next few years the supply of new engineers is likely to be far less than the demand.

"Engineering graduations will decline sharply from the peak figure of 52,000 in 1950, when the greatest number of veterans completed their training. Freshman enrollments have dropped sharply since 1946 in engineering and other specialties which are predominantly men's fields, as the number of veterans entering college has declined. In the fall of 1950, the first-year engineering class was once more made up almost exclusively of non-veterans, and the engineering schools got about their prewar proportion of high school graduates.

"On the basis of 1950 enrollments and assuming prewar drop-out rates (for example, 50 per cent between entrance and graduation), the numbers of engineering graduates in 1951 and the following three-years may be estimated as follows: 1951, 38,000; 1952, 26,000; 1953, 20,000; and 1954, 17,000. The figure of 17,000 graduates for 1954 is below even the average peacetime demand and is far below the number needed under mobilization conditions.

"Obviously, there will not be enough engineering graduates to meet the expected defense and civilian needs, at least until the mid-50's, and probably for some time thereafter. Both the mobilization program and the long-term growth of the profession point to a continuing high demand for engineers. This can be met only if the proportion of high-school graduates who decide to prepare for the profession is much larger in the next few years than in 1950 and than before the war."—*Effects of Defense Program on Employment Outlook in Engineering, Bureau of Labor Statistics, U. S. Department of Labor.*

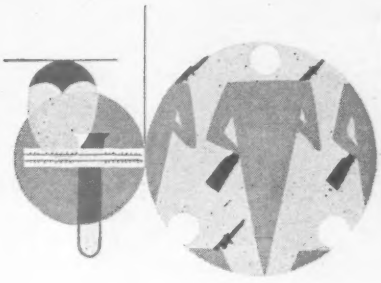
MONEY, METAL AND MEN

We can't create new scientists and engineers out of wishes and thin air, so as never before United States manpower must be utilized to the utmost. And while we're trying to get by in straitened circumstances, we had better do something to attract the young people coming up to the scientific and technical fields.

We have done much to provide money and metal for national defense; but we have done a miserable job providing the trained manpower upon which our strength *finally* depends.

You can't grow an engineer over night. To begin with, he started out life with mental ability and alertness of a high order. In high school his grades ranked him in the upper third of his classes. He demonstrated an aptitude for, and attained a high standing in, mathematics and science —the languages of engineering. In college he took the tough courses. In fact, to get by creditably he had to have initiative, reliability, energy, a sense of responsibility, good judgment and mental honesty.

Chances are he worked on the outside to pay part or all of his college expenses. When he took his first job he found himself up to his neck in working and training—it takes time to learn the detailed techniques of engineering operation. Somewhere along the line he began to make his contribution.



In World War II, for example, several hundred engineers just like him, with an average age under thirty, translated the B-29's gun-computer system from theory to actuality, a feat that none of us should ever forget. And whatever else we have, come peace or war, is the direct result of rigorous training in orderly, dispassionate, and planned manner of procedure that distinguishes the engineering method.

Today there is a new and increasing trend: competing with industry and government on the American campus is the non-engineering company recruiter. An insurance company representative said to be one of our men, as they sat in a college placement office: "The reason I am here instead of over at the liberal arts college is that these engineering students have been trained to think toward definite solutions to problems—they're not lost in the fuzzy realms of opinion and discussion. Give them a job to do, they do it."

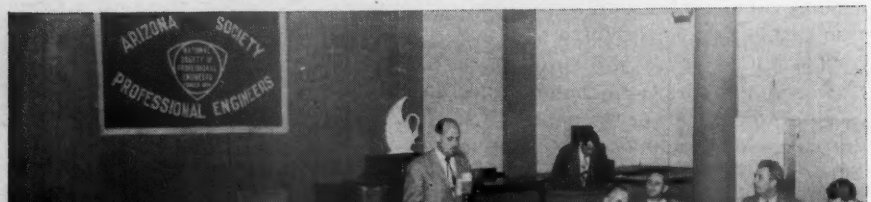
If you follow promotions in business and industry, as announced by the press, you will find countless examples of men who have come up through engineering colleges and subsequent engineering assignments. A significant majority of them are in high places. These "high places" are not necessarily engineering! They reach these "high places" because they have learned to use their heads!

The most important long-term need for the profession today is to correct the widespread impression that the country is oversupplied with engineers and scientists.

Use your facilities. You have the facts. Surround those facts with the romance of the profession—the challenging problems and the brilliant solutions—and drive for action.—*Maynard M. Boring, Manager of Technical Personnel, General Electric. The Monogram.*

With Our Members . . .

ARIZONA JOINT MEETING



Shown above is a scene from the Third Annual Joint Meeting of Arizona Engineering Organizations, for which the ASPE was host. The meeting was held on November 23 and 24 and the above picture was taken at the dinner held at the Westward Ho Hotel in Phoenix. Included in the picture are, left to right: Paul F. Glendenning, President, Arizona Section, ASCE; L. L. Dresser, President, NSPE; Governor Howard J. Pyle of Arizona; Carll C. Huskison, ASPE President; H. C. Biggleston (in background), Chairman, Arizona Section, ASME; William D. Williams, National Director, ASPE; J. G. Jenkens, Jr., Chairman, Arizona Section, AIEE; F. W. Stevenson, President, Phoenix Chapter, AAE; and J. D. Whitnell, Temp. Chairman, Arizona Section, IES.

Arizona Society Plays Host To Joint Meeting Of Arizona Engineers

The Arizona Society recently acted as host to the Third Annual Joint Meeting of Arizona Engineering Organizations for a two day meeting in Phoenix, on November 23 and 24.

On Friday evening, November 23, an Engineer's Dinner was held in the Pompeiian Room of the Hotel Westward Ho, with Carll C. Huskison, P. E., President of the Arizona Society, presiding. An address of welcome was given by the Honorable Howard Pyle, Governor of Arizona. Mayor Nicholas Udall of Phoenix was also an honored guest. L. L. Dresser, P. E., President of the National Society, was guest speaker for the occasion, and he was introduced to the group by William D. Williams, P. E., National Director of the Arizona Society.

Joint noon luncheons were held in the Corinthian Room and the Round-Up Room of the Hotel Adams. During the afternoon, meetings were held by the A. S. C. E., A. I. E. E., A. S. M. E., and the Illuminating Engineering Society.

The meeting was concluded on Saturday evening with a Barbecue Dinner and square dancing in Bud Brown's Barn in Phoenix. C. C. Sawyer, P. E., President of the Central Arizona Chapter, ASPE, presided at the dinner, and the entire program for the meeting was under the direction of Program Chairman Reamy C. Fitch, P. E.

Maryland Society Holds Dinner-Dance In Baltimore

The Maryland Society of Professional Engineers held a dinner-dance to a capacity crowd December 7 at the Lord Baltimore Hotel in Baltimore. One hundred and eighty MSPE members and their wives attended. In a brief ceremony, the newly-elected officers were installed. James O'Donnell, P. E., was inducted into the Presidency, succeeding Arthur Gompf, P. E.

Other new officers include: First Vice President, Louis G. Smith, P. E.; second vice president, Manus E. McGeady, P. E.; National Director, Owen W. Turpin, P. E.; Alternate National Director, Dewitt Swartz, P. E., and Secretary-Treasurer, William G. Robertson, Jr., P. E.

Nashville Chapter Hears Bryan At Recent Meeting

Ross Bryan, P. E., partner of the Nashville, Tennessee consulting engineer firm of Bryan and Dozier, and President of the Nashville, Tennessee Chapter of the State Society spoke to the South Carolina Piedmont Chapter December 11 at the Poinsett Hotel's Statesman Room.

Mr. Bryan, nationally known for his work in Prestressed Concrete, gave an illustrated lecture on this subject at an unusually well attended meeting. Colored slides clearly showed the application of precast concrete in bridge and building design.

New Chapter Planned For Pennsylvania SPE In Bucks County

A dinner meeting was held on November 15 at the Doylestown Inn in Bucks County, Pennsylvania, to discuss the possibilities of starting a new Chapter. Thirty-nine interested professional engineers were present.

Carl L. Kreidler, P. E., Chairman of the PSPE Chapter Committee, was in charge of the meeting, assisted by Harold Curll, P. E., and Stacy Widdecomb, P. E., both of the Valley Forge Chapter, PSPE. John T. West, Jr., P. E., Executive Secretary of the Pennsylvania Society, outlined the purposes of the Society. Following a question and answer period, the decision was reached to apply for a charter. Thirteen engineers signed the Petition immediately.

William S. Erwin, P. E., of Langhorne, Pennsylvania, was elected temporary Chairman, and R. H. Gade, P. E., of Fallington, Pennsylvania, temporary secretary.

North Dakota SPE Holds Annual Meet At Grand Forks

NSPE President Dresser addressed the annual meeting of the North Dakota Society's eleventh annual convention at Grand Forks, on November 16. Mr. Dresser paid tribute to the State Society, saying that its percentage of membership was higher than any other state. The meeting was held in the Decotah Hotel.

Dean E. L. Lium of North Dakota University was awarded the Elwyn Chandler Award for meritorious service as the Engineer of the Year. A. L. Bavone, P. E., of Minot was chairman of the Awards Committee.

Directors elected for the coming year are: John W. Harty, P. E., Grand Forks District; H. P. Jandecek, P. E., District 2; Rueben Reich, P. E., Bismarck, District 3; and James Lund, P. E., Fargo, District 4.

R. H. Myhra, P. E., of Minot was elected President for the coming year, John A. Oakley, P. E., of Fargo is the retiring President. Edward Booth, P. E., of Bismarck is the new Vice President. George Teskey, P. E., and Joseph Kirby, P. E., of Bismarck were re-elected to the offices of National Director and Secretary-Treasurer.

Edwards Of Illinois Named General Manager Of Chicago Centennial

Frank W. Edwards, P. E., member of the Illinois Society and director of the department of civil engineering at the Illinois Institute of Technology, has been appointed general manager of the Centennial of Engineering to be held in Chicago next summer. Selection of Edwards, who has been granted a leave of absence from the Institute to direct the $1,000,000 Centennial, was announced by its president, Lenox R. Lohr.

In his new capacity with the Centennial he will coordinate a program that includes a five-year exhibit of world-famed engineering accomplishments, to be staged at the Museum of Science and Industry in Chicago; a summer-long pageant that is expected to tell the story of engineering to more than a million spectators; and a convocation that will attract approximately 50,000 engineers to Chicago.

New York's Richmond Chapter Sign Up For Civil Defense Work

Members of the Richmond County Chapter, NYSSPE, met on January 3 at the Staten Island Museum to sign up as a unit for civil defense work. The names of Chapter members were listed by Colonel Frank Kosman, Chairman of the Borough Public Works Emergency Civil Defense Committee.

All officers of 1951 were re-elected for 1952. They are: Hugo Stenberg, P. E., President; Michael Pisetzner, P. E., first vice-president; Lawrence W. Larsen, P. E., second vice-president; Raymond Reddy, P. E., secretary and Patrick McCarthy, P. E., treasurer.

San Joaquin Chapter Of California Holds Recent Annual Meet

The San Joaquin Chapter of the California Society held its Annual Meeting on December 20 at the Tahitian Room of the Town House, Stockton.

Following a dinner, Mr. Dutch Derp, Secretary-Manager of the Stockton Chamber of Commerce addressed the group on "The Industrial Possibilities of Stockton."

JEFFERSON-LEWIS CHAPTER MEETS

Pictured above are members of the Jefferson-Lewis Chapter, NYSSPE, at a recent meeting held at the Hotel Woodruff, Watertown, New York. Among those attending were, left to right, front: Harold B. Dwyer, P. E., treasurer; Mr. Carl L. Zamjohn, featured speaker for the meeting; and Harold J. Besha, President. Rear: George B. Robbins, Executive Secretary of the NYSSPE; Dan C. Cooper, secretary; Carlos L. Stafford, vice president, and William T. Field, director.

Alabama Receives Charter at Recent Annual Dinner Meeting

NSPE President L. L. Dresser was guest of honor when the Alabama Society held its Annual Dinner Meeting on January 4 in the Jefferson Room of the Thomas Jefferson Hotel, Birmingham.

Following dinner, the installation of new officers took place, and President Dresser presented the new Society with its State Charter. Many prominent members of NSPE were also in attendance at the meeting.

PSPE Chapter Hears Address On Great Ice Age In State

Dr. Frank Preston of Butler, Pennsylvania, addressed the December 10 meeting of the Midwestern Chapter, PSPE, on "The 'Great Djino' of the North." The meeting was held at the Castleton Hotel in New Castle.

Dr. Preston gave an account of the last stage of the Great Ice Age along Butler and Lawrence County lines in Pennsylvania, and the results thereof. His talk was accompanied with colored films.

At the January 5 meeting group, which was held at the Humes Hotel in Mercer, Mr. Charles A. Keelen, Portland Cement Association, spoke to the Chapter on "Prestressed Concrete—A Reality."

They've given in Korea—have you? Join the vital Blood Donor Program today! Your gift may save a life.

Jefferson-Lewis County Chapter Hears Address On Iran

The Jefferson-Lewis County Chapter of the New York State Society held its annual meeting on December 11 at the Hotel Woodruff in Watertown, New York. Featured speaker of the evening was Carl L. Zamjohn, P. E., who gave an illustrated lecture on the background of the present crisis in Iran.

Mr. Zamjohn, who worked on the construction of 600 miles of road across the Iranian desert and mountains from the Mediterranean sea to the Caspian sea, during 1941 and 1942, said that the Iranian natives do not understand their plight and therefore are at a loss to know how to remedy the situation. He discussed the political and domestic phases of the situation in Iran in detail, using slides to describe the poverty-stricken conditions of its 13,000,000 inhabitants.

New Chapter officers elected at the meeting were: President, Harold J. Besha; Vice President, Carlos E. Stafford; Secretary, Daniel Cooper; Treasurer, Harold R. Dwyer, and Director, William T. Field.

New Jersey Member Retires After 42 Years Of Service

C. H. More, P. E., having served forty-two years as Chief Electrical Engineer with the American Can Company of New York City, is retiring.

Engineer More is a member of the Monmouth-Ocean Chapter of Professional Engineers and Land Surveyors, New Jersey Society, and intends to continue his membership in that group. He is now making his home at Breton Woods, N. J.

News To Note

Massachusetts

Mr. Henry F. Long, Massachusetts Commissioner of Corporations and Taxation, addressed the Massachusetts Society at a meeting which was held on December 13 at the GE West Lynn Works Auditorium, Lynn, Massachusetts. The subject of expert Long's talk was "Massachusetts Corporate Taxes and the Professional Engineer."

Kansas

The Wichita Chapter of the Kansas Society met on December 28 at the Shirkmere Hotel in Wichita to hear Mr. J. Thomas Via, City and County Planning Director, speak on plans for civic and county improvement.

A cordial invitation to attend the meeting was extended to the members of the County Planning Commission and the County Commissioners by the Wichita Chapter.

California

Frank T. Coffyn, the first aviation student of Orville Wright, who holds an aviator's license dating back to 1910, was the speaker at a recent meeting of the Peninsula Chapter, CSPE. Coffyn is head of the documentaries division of Hiller Helicoptors Corp. His private movies of the early days of flying, including barnstorming flights under the Brooklyn bridge, and President Teddy Roosevelt going aloft for his first flight were shown.

Connecticut

The Hartford County Chapter of the Connecticut Society met on December 5 at the Modernistic Room of the Hotel Bond in Hartford to hear City Manager Carleton E. Sharpe of Hartford speak on "Problems and Progress of City Governments in Connecticut."

Pennsylvania

The Philadelphia Chapter, PSPE, held a dinner meeting on December 6 at the Engineers Club U. S. Congressman Hugh D. Scott, Jr., was guest speaker for the meeting, and discussed the national situation under the title "Guns or Better." The Philadelphia Chapter also recently announced that, under the chairmanship of Robert H. Merz, P. E., their Center City Survey Committee has made its plans for developing practical plans for civilian protection in the event of atomic attack. The work of this committee will include a 50 block survey of the city.

New York

The Westchester Chapter held a Christmas party at Winklemen's in North White Plains on December 18. Following refreshments and the distribution of presents, Christmas carols were sung.

West Virginia

The Appalachian Chapter met at the El Chico Cafe on December 10 to hear a discussion of the Raleigh County Library facilities by Mrs. Cecil H. Graham, librarian. The second part of the program was devoted to the showing of a movie called "Let's Get Out of the Muddle," which showed the serious condition of the nation's highways. Following the meeting, books were presented to the library by the Chapter. The Annual Installation Banquet of the Appalachian Chapter will be held at the Black Knight Country Club on January 16.

Texas

The San Jacinto Chapter held its annual meeting and installation of officers at the Ben Milam Hotel on December 10. J. Neils Thompson, P. E., Vice President of the Texas State Society was the main speaker.

Illinois

The Central Illinois Chapter held a meeting Dec. 27 at Greider's Mezzanine in Decatur and heard Alex Van Praag, P. E., outline progress made toward unity in the engineering profession. Movies were also shown at the meeting.

OUR AUTHORS

Paul H. Douglas, United States Senator from Illinois, **(Does America Need A Missouri Valley Authority?—Pro, page 6)** had a distinguished career as an educator and author before being elected to Congress in 1948. He was born in Salem, Mass., in 1892 and was reared on a farm in northern Maine.

He went to Bowdoin and earned a Master's Degree from Columbia. In 1920, he went to the University of Chicago as an assistant professor of industrial relations. He became a full professor at Chicago in 1925 and was with that university until his election to the Senate.

Douglas was elected President of the American Economic Association in 1947. He is the author of many articles and books, his best known being *The Theory of Wages*, which won a $5,000 prize in 1934.

Mr. Douglas was elected alderman of Chicago's Fifth Ward in 1939. Following an unsuccessful bid for the Democratic nomination for Senator in 1942, he enlisted in the Marine Corps. Wounded twice, he rose from private to Lt. Col. and was released from active duty in 1946. Shortly thereafter, he was elected to the United States Senate.

Harry P. Cain, United States Senator from Washington, **(Does America Need a Missouri Valley Authority?—Con, page 7)** was born in Nashville, Tennessee in 1906 and moved with his parents to Tacoma, Washington at the age of five.

He attended the University of the South at Sewanee, Tennessee before becoming a newspaperman on the Portland (Oregon) *Telegram*. In 1929 he went into the banking business and was an executive of the Bank of California, Tacoma Branch for ten years.

In 1940 he was elected mayor of Tacoma for a two year term, was re-elected to a four year term. In early 1943, Senator Cain took a leave of absence to enter the army and he saw combat in Africa, Sicily and Italy. He was awarded the Croix de Guerre, the Bronze Star, the Legion of Merit and other medals and left the army a colonel in December, 1945.

In 1946 Mr. Cain was elected to the Senate from Washington and in December of that year was appointed to the Senate to fill out an unexpired short term prior to beginning his full six year term.

Professional Postscripts

Lincoln Arc Welding Foundation Sponsors Award Program for 1952

To encourage steel savings and insure a maximum total national saving in the present emergency, the Lincoln Arc Welding Foundation is sponsoring a 1952 Award Program, "Welded Bridges for Steel Conservation."

The program is open to all persons in the United States who feel themselves qualified to enter and offers 15 awards totaling $16,100. First award is $7,000, second award $3,500, third award $2,000 with 12 honorable mention awards of $300 each. Awards will be given for the best bridge designs which show weight and cost savings over a comparable riveted bridge. The program allows entrants complete freedom as to size and type of bridge to be designed since the percentage of saving is the most important factor to be judged. Closing date is July 15, 1952.

Rules for this program, which is dedicated to the national interest through the conservation of steel, have been formulated by 14 of the nation's leading bridge engineers, 5 of whom will serve as Jury of Award. Chairman of the program is Professor James G. Clark of the University of Illinois. Rules are available from The James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio.

National Science Foundation Funds Permit Research to Begin

The $3,500,000 appropriation for the National Science Foundation in the Supplementary Appropriation Act of 1952, signed by the President in November, has enabled the Foundation to start immediately on its two major operating programs: support of basic research in the sciences and training of scientific manpower. Up until now the Foundation has been concerned primarily with planning and with the problems of organization and staffing prior to beginning its operating program.

The reduction in the appropriation from the President's budget request of $14,000,000 for fiscal 1952 has required material scaling down and adjustment of the program originally presented to the Congress. According to Dr. Alan T. Waterman, director of the Foundation, approximately $1,500,000 of the available funds will be allocated for the support of basic research in biology, medicine, mathematics, the physical sciences, and engineering; about $1,350,000 for the training of scientific manpower; and the balance for development of a national policy for the promotion of basic research and education in the sciences, for the wider dissemination of scientific information, and for other services including support of the National Scientific Register, now established in the Office of Education.

Basic scientific research will in most cases be supported by means of research grants. Proposals for research grants will be given preliminary evaluation and review by the Foundation's three research divisions: the Divisions of Biological Sciences under Dr. John Field, the Division of Mathematical, Physical and Engineering Sciences under Dr. Paul Klopsteg, and the Division of Medical Research under Dr. John Field (acting). Each Division will be assisted in evaluation and review by a Divisional Committee, made up of outstanding scientists in the field, and by expert consultants employed on a part-time basis. Grants will be approved by the Director and the 24-member National Science Board, whose chairman is Dr. James B. Conant, president of Harvard University.

Unusual Engineering Opportunity Available In Brownsville, Texas

A recent official survey by the Board of City Development of Brownsville, Texas, reveals that opportunity exists for a successful private practice for a top grade consultant irrigation engineer in Brownsville.

The rapid agricultural development of the semi-arid delta soils of the Rio Grande both in Texas and Mexico, coupled with the impending completion of the Falcon dam and its resulting problems of water distribution would furnish adequate work for an irrigation consultant, a board spokesman said.

Most all the crop land of the Lower Rio Grande Valley is irrigated. Better irrigation practices would result in higher yields and improved soil conditions. Individual farmers, whose cash income per acre is high, need consultant service and community projects could furnish additional work.

Like most opportunities, success would depend upon the individual, the board pointed out. The planned irrigation developments in Northern Mexico would furnish unlimited work to a highly rated consultant. Special skills are required in this area. A knowledge of Spanish would be helpful.

Brownsville, a city of about 50,000 including suburbs, is located opposite the Mexican city of Matamoros, Tamps., of similar size, 30 miles from the Gulf of Mexico. Transportation facilities include the deep water Port of Brownsville; the terminus of the Intracoastal Canal; three railways (including the Mexican National system); 2 bus lines and a dozen air freight passenger lines using the International Airport. A new highway links the town to the Pan American Highway at C. Victoria, Mexico. The area has developed rapidly in the last 10 years.

Weather is semi-tropical with light rainfall and an average temperature of 73 degrees. The city has a daily newspaper, two radio stations, a modern hospital, a junior college and good recreation facilities. Living costs are low.

Additional information concerning the opportunity may be obtained by writing the Board of City Development, Brownsville, Texas.

N.S.P.E. Officers

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Executive Director, PAUL H. ROBBINS, P.E.

Jacksonville Chapter's Education Committee Conducts Survey

The Education Committee of the Jacksonville Chapter, FSPE, under the chairmanship of Professor Fred H. Pumphrey, has conducted a survey among engineering students at the University of Florida in an effort to find out just when they decided to study engineering. The particular survey among students of Engineering Drawing and Descriptive Geometry, was conducted by John E. Kiker, Jr., P. E., and Professor E. S. Frash cooperated in the distribution and return of the questionnaires.

Professor Kiker also checked the results of this particular survey among a smaller group of his own students taking Water Supply Engineering.

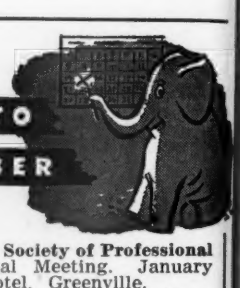
Out of the total number of students surveyed (248), 76 chose engineering as a career during the first or last half of their senior year in high school. 59 chose it during their junior high school year, 20 during their sophomore year and 20 in their freshman year. 23 had set their minds on engineering before attending high school.

Other students surveyed came under the following classifications in their time of choosing engineering: 9 made their choice between high school and college; 8 decided while in the armed services; 9 while working in industry; 20 after entering college, and 4 were uncertain as to when they made up their minds to become engineers.

One interesting sidelight of the survey was that of the entire 248 students surveyed, only 53 had been advised to take engineering by their high school vocational counselors.

Dresser To Address Joint Meeting Of California Chapters

L. L. Dresser, P. E., President of NSPE, will be guest speaker at a meeting of 8 California Chapters in Spenger's Banquet Room in Berkeley, California. The East Bay Chapter, CSPE, will be host Chapter for the occasion. Mr. Dresser, having traveled extensively among the various State Societies prior to his Berkeley visit, will make a full report of his travels and activities to the assembled Chapters.



South Carolina Society of Professional Engineers—Annual Meeting. January 18. Poinsett Hotel, Greenville.

Idaho Society of Professional Engineers—Annual Meeting. January 18 and 19. Hotel Boise, Boise.

Texas Society of Professional Engineers—Annual Meeting. January 24, 25 and 26. Buccaneer Hotel, Galveston.

Wisconsin Society of Professional Engineers—Annual Meeting. January 25 and 26. Hotel Schroeder, Milwaukee.

Professional Engineers of North Carolina—Annual Meeting. February 6.

Oklahoma Society of Professional Engineers—Annual Meeting. February 8 and 9.

New York State Society of Professional Engineers—Mid-Winter Meeting. February 8 and 9. Nelson House, Poughkeepsie.

Tennessee Society of Professional Engineers—Annual Meeting. February 18. Nashville.

Kansas Society of Professional Engineers—Annual Meeting. February 22 and 23. Townhouse, Kansas City, Kansas.

Ohio Society of Professional Engineers—Annual Meeting. March 13, 14 and 15. Statler Hotel, Cleveland.

National Society of Professional Engineers—State Presidents' Conference. March 14 and 15. Statler Hotel, Cleveland, Ohio.

Through an oversight, the advertisement of Ace Pipe Cleaning Contractors, Inc., in the December issue of the magazine, carried the wrong telephone number. The correct telephone number for this company is CHestnut 2891.

DESIGNERS

We need men with experience as:

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Concrete Designers
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Men should have experience in Blast Furnaces, Steel Mill, Oil Refinery or other Heavy Structural Design.

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We pay among highest rates plus annual profit-sharing bonus.

Our continuous expansion and growth offers many fine future opportunities.

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2300 Chester Ave., Cleveland 1, Ohio

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Saxe Welding Connection Units position and secure structural parts to be welded.

Clip K3A permits an adjustable connection.

These widely used units eliminate all hole punching, and, with welding, produce the most economical, safe, and quickly erected structural frame.

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Blueprint

(*Continued from page* 12)

effectively only with certain clients. Technically, these are all good engineers, but methods of approach, reliability and clarity of expression establish wide variations in the adaptability of these men.

"Naturally, the engineers who can deal effectively with all clients are the most valuable to our firm.

"From 1940 to the present our firm has enjoyed a healthy growth. We have 19 engineers on our payroll. We could have expanded more, but decided not to. In our opinion, if the organization got much larger, it would be too big for effective supervision. As it is, we are engaged on about $20 million worth of construction each year, of which our design constitutes about one-quarter.

What are some of the most interesting experiences Gompf has had in his career as a consultant?

Most interesting, Gompf reports, was his part in building the new eight-million-dollar plant of the Baltimore *Sunpapers*. His firm designed all the heating, air conditioning, plumbing, all of the electrical work, and everything that had to do with the mechanical and electrical engineering on the building.

"The job was fascinating," Gompf said, "because the *Sunpapers*' new plant has several innovations; for example, electronic control of the presses. Some form of resistance control has generally been used in the past but some study indicated that electronic control would give better speed regulation, higher operating efficiency (because it does not waste power at reduced speeds), and there is no problem of heat from the power system dissipated in the resistance banks."

Gompf has had a couple of interesting sessions in court where he is occasionally called to testify as a witness on engineering matters.

His most interesting case was a helter-skelter affair, he recalls. About eight o'clock in the evening he got a frantic call from a lawyer whose client was plaintiff in a damage suit. It seems that the plaintiff had stored a large number of cases of whiskey in the basement of a building. A flood had badly damaged the firewater. The plaintiff sued the defendant, his landlord, on the ground that the flood was caused by frozen pipes not properly safeguarded against freezing.

At the first day of the trial, the judge had remarked to the plaintiff's lawyer that he had not introduced any evidence to prove that the damage was caused by flooding due to freezing. Faced with the possibility of having his suit dismissed, the lawyer called Gompf to have him make an examination of the premises and testify in court the next morning.

Gompf and the attorney met at the premises in the wee hours of the morning, where the engineer examined the premises, took data and made fast computations. Armed with weather bureau data about the temperature on the day of the mishap, he testified in court later in the morning and the plaintiff's lawyer won.

The engineering work that gives Art the greatest personal satisfaction has been for his alma mater, the Johns Hopkins University, where he has been consultant for several years. One of his best friends is Dean W. B. Kouwenhover, a NSPE member, who made Gompf's education possible by giving a trustee's scholarship for three years while he was in engineering school.

Gompf has some advice for engineers who are considering going into business for themselves. It is:

(1) Prepare yourself with a working knowledge of accounting, commercial law and economics.

(2) Be ready to work long, hard hours and study constantly to keep abreast of your specialty.

(3) Locate a large city. Smaller towns cannot provide the volume of business necessary to maintain an engineering firm.

(4) Team up with another engineer. An ideal combination is an older engineer who has been in practice for some time and a young engineer.

(5) Be active in civic organizations and engineering societies like NSPE. "It pays," Gompf says. "No matter how good you are, if other people don't know it, you'll never get ahead. Such activities pay real dividends."

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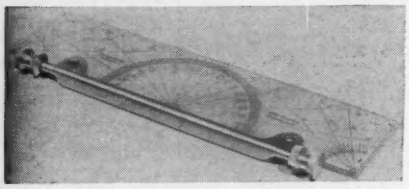
What's New

● A new, improved, basic drafting device, the Paraline, has just been introduced. This precision instrument is small enough to be carried in the pocket. The metal parts are incorporated in *one* sturdy section, thus eliminating slippage so common in previous models.



In one instrument, the Paraline provides a T-square, straightedge, triangle, protractor, a 32d inch scale, and parallel rules. This pocket drafting machine measures 10¼ x 3-3/16. It is completely self-contained and requires no attachments or board clamps. ***Item one.***

● "Lubri-Cut," a new cooling and lubricating agent that triples production output, at the same time increasing the life of taps, drills and cutting tools up to 12 times, has been recently announced by the Tap and Drill E-Z Corporation.

This new fire-resistant, patented compound is said to be free from all abrasives and acids and is composed of special cooling and lubricating agents that cling to the tool and give these sensational results in high speed drilling, blind hole tapping, tapping, counter sinking, profile routing, swedging, etc.

The manufacturer states that "Lubri-Cut," available in both paste and semi-paste form, permits tolerances in the millionths and is equally efficient when used on hard and soft ferrous and non-ferrous metals, on plastics or on glass.

Free samples are available. ***Item two.***

● Gerald Swartz, P. E., of Cleveland, Ohio, has developed an "Automatic Watchman" which may be attached to a flue in order to determine if heat is being wasted. Waste heat from overheated flues can be dangerous, and the "Automatic Watchman" gives warning of this condition in plenty of time for a furnace repairman to be called.

The new device's pointer indicates when your furnace or boiler needs adjustment or cleaning. Simple instructions for adjusting your furnace or boiler come with each "Automatic Watchman." For the simple installment, punch a three-fourth-inch hole in the flue and fasten in the sleeve of the dial by wiring the dial to the flue or using metal screws. ***Item three.***

● A new invention by a Chicago manufacturer claims to revolutionize modern photocopying. This new machine produces dry photocopies of anything almost instantly — without the slow, messy developing, fixing, washing and drying ordinarily required by present photocopy methods. The Auto-Stat is based on an entirely new principle of instant and automatic developing and fixing. It enables anyone— without training or special skill —to produce clear, black and white photo-exact copies of any original in any office.

This new method is fast — using only two simple steps. A finished copy can be made in less than 30 seconds. There are no limitations as to type of papers, documents, or originals that can be copied on the Auto-Stat. A free illustrated booklet describing the Auto-Stat in full detail is being offered by the manufacturer. ***Item four.***

● Up-to-date information on Non-Clogging Spray Nozzles for cleaning all kinds of materials, screens, fruits, vegetables, etc., is given in a new 4 page illustrated Folder No. 2386 released by Link-Belt Company.

These nozzles consist simply of a scientifically shaped, curved bronze deflector having a smoothly-polished water contact surface and a sharp, true discharge edge—with a U-bolt and two hexagon nuts for holding the deflector in proper position on a pipe drilled with a plain hole at each desired spray location.

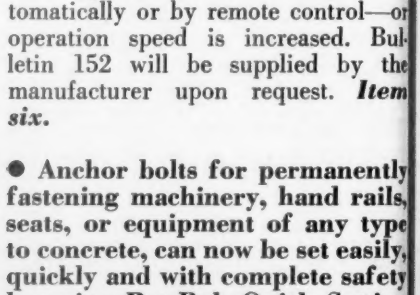
The folder shows installation pictures and how simply the nozzle can be applied. Tables give dimensions of nozzles for pipes of 1 to 3 inches diameter, and the capacity in gallons per minute through orifices of 5/32 to ½ inch diameter at pressures of 20 to 100 pounds per square inch.

A copy of the new Folder 2386 will be forwarded to any interested reader. ***Item five.***

● Calling attention to several industrially-proved installations of Ledeen Cylinders in over a dozen different fields is Bulletin 152, just released by the Ledeen Manufacturing Company. Following the bulletin's theme, "Use a Cylinder and Save a Man," application of the cylinders is illustrated and described in such widely varied fields as chemical plants, oil refineries, plastics concrete plants and lumber mills.

In some instances manual power is either eliminated or reduced. In other applications work is done automatically or by remote control—or operation speed is increased. Bulletin 152 will be supplied by the manufacturer upon request. ***Item six.***

● Anchor bolts for permanently fastening machinery, hand rails, seats, or equipment of any type to concrete, can now be set easily, quickly and with complete safety by using Por-Rok Quick Setting Cement, according to its manufacturers.



Por-Rok successfully replaces critical lead and sulphur for most bolt-setting operations. Applied cold, there is no heating hazard—and the speed with which it forms a permanent weld-joint is amazing.

Por-Rok is self-bonding, self-levelling, oil-resistant, and will not shrink. It has the remarkable compression strength of 4500 lbs. p.s.i., verified by an independent testing laboratory. ***Item seven.***

• Effective tamping of concrete for floors, sidewalks and tilt-up slabs is speeded up with the new Gar-Bro Power-tamp. This machine eliminates voids and provides a vibratory action which tamps in rock and brings up mortar to make the finishing job easier. Because it enables the operator to tamp concrete which is partially set up, Power-tamp saves many jobs which would otherwise be lost with a hand tamp.

Gar-Bro Power-tamp is designed for simple, one-man operation. It has an automatic clutch and governor controlled speed adjustable from 500 to 1500 tamps per minute. All bearing surfaces are fully protected from mortar and dust. Two quart capacity gasoline tank enables continuous operation for four hours without refueling. The float is of abrasion resistant moly steel. ***Item eight.***

• An electronic "plumb-bob," a new development in the field of electronics, relieves the engineer of one of his more difficult problems in construction. The device is designed to aid in computations for use in pile-driving. Developed by the Hinchman Corporation, under the direction of W. H. D. Hinchman, P. E., the device indicates the angle of deflection of all types of hollow piling, with accuracy of about 2½ inches for a depth of 100 feet.

The instrument consists of two parts. The part lowered into the pile is encased in a steel capsule approximately 4 feet long and 6 inches in diameter. The capsule contains the plumb-bob and the operating motors of the instrument.

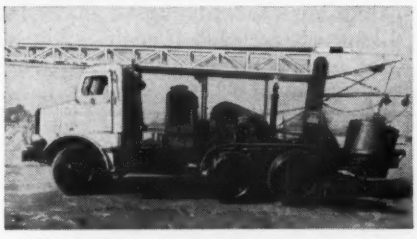
Although the original purpose of the plumb-bob was to measure the deflection of hollow piling from the vertical axis, it can be adapted to give remote indication of many other angular measurements.

A bulletin entitled "Surveying Hollow Piping" is available from the Hinchman Corporation. ***Item nine.***

• A new rock-type tire designed particularly for graders operating where there is considerable rock or under especially tough conditions is announced by the B. F. Goodrich Company.

Made for semi-drop center rims, the tire fits rim size 800 T, has a cross section 13.2 inches wide with an outside diameter of 50.8 inches, maximum rated load of 6,600 pounds when inflated to 50 pounds pressure, and makes 426 R. P. M., all of the data being based on a maximum speed of 25 m. p. h. ***Item ten.***

• A new bucket-type earth drill which bores 16 to 84 inch holes to a depth of 200 feet has been developed by a California concern. The new Calweld Earth Drill Model 150-A removes 21.5 cubic feet of earth per pass to speed up such varied jobs as are required in heavy duty construction, mining and oil field work.



It digs caisson pier holes with belled footings, pre-bores concrete piles, drills water wells and cesspools, explores mineral deposits and tests soil conditions. Every operation of the Calweld Earth Drill Model 150-A is mechanically performed. A variety of interchangeable bucket-drills permit boring in almost every soil condition. All controls are centered in a single unit for raising the derrick, lowering the drill, lifting the bucket and powering the drill. Bucket is unloaded by a simple hand-tripping operation. Built on a skid frame, the Calweld Earth Drill Model 150-A can be mounted on any truck chassis two tons or larger. ***Item eleven.***

• "Compressed Air Power in Construction," a pamphlet prepared by the Committee on Engineering Education of the Compressed Air and Gas Institute, has just been released. It presents concisely, but comprehensively, the many uses of compressed air in construction: bolting, cement spraying, conveying, demolition, digging, drilling, hoisting, paint spraying, pile driving, pumping, riveting, rock drilling, sawing, tamping and vibrating concrete.

The pamphlet describes and illustrates air-operated tools used in these construction phases and explains how that equipment operates and presents methods for measuring the equipment's performance. Because the air compressor is the source of power, the pamphlet also describes and illustrates the types of air compressing equipment used in the construction field, explaining how compressed air is distributed from the compressors to the tools.

The 21-page, 8½ by 11 inch pamphlet is punched for insertion into standard 3-ring binders. ***Item twelve.***

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MVA—Pro

(*Continued from page 8*)

YES! **The MVA could develop an over-all program, putting everything in its proper perspective.**

There probably will be enough in years of normal rainfall but not enough in the dry years. Nor is there any authorized program for soil conservation and silt control.

I have often been impressed that there are certain symbolic things which cause otherwise prudent men to do inexplicable things. One of these, it seems, is the toot of a steamboat whistle. Apparently the toot of a steamboat whistle has caused Congress to pour millions into deepening the channel of the Missouri (and a host of other rivers) to make provision for a navigation which does not exist and which will never exist to an extent necessary to justify the expenditure of such huge sums of money.

Let us look into this matter a little more closely; the late Senator Clyde Reed of Kansas, an expert on river navigation problems, (and, incidentally, not a member of my political party) had occasion to make the following statement:

"We have spent $100,000,000 on the lower Missouri River in an effort to make it navigable. We could have taken the money that we have appropriated and moved all of the traffic that moved on the lower Missouri River by Air Freight and paid the cost of moving it with a lesser amount than the amount we have appropriated and mostly wasted on the lower Missouri River for navigation purposes."

At the time Senator Reed made his statement we had spent far, far less on navigation on the Missouri than we have now. Now it is proposed that the Corps of Engineers dredge a 9 foot channel all the way up the Missouri to Sioux City, Iowa, to make provision for a virtually non-existent navigation traffic. I once remarked in a Senate debate that I believe such a development is no more needed by the people of the area than a cannibal needs a silk hat and white tie. I believe that that correctly evaluates its worth.

INDEED, the prospective toot of the steamboat whistle seems to have a mesmeric effect on the minds of men!

Entirely ignored in the Pick-Sloan plan is the vital problem of retaining as much rainwater as possible in the region in which it falls. It is, of course, far more sensible to hold the soil in the upper Missouri Valley and have the humus covered ground soak up rainwater and retain its capacity than to rely solely on higher and higher levees to contain the water that has washed down the river. The soil should be held for proper agricultural use rather than allowed to be washed downstream to clog channels and fill reservoirs. This is an entirely practical way of disposing of some flood water and at the same time using it in the national interest for agricultural purposes.

The Department of Agriculture has presented a program for storing water in the soil, for the reseeding of 38 million acres of range and cropland and 400,000 acres of forest range, and for building about 15,000 *small upstream dams* and for moisture-conserving practices such as terracing and contour plowing. This, of course, is not to replace the flood control plans of the Army Corps of Engineers, but to supplement them.

Competent professional engineers have given me their opinion that this upstream program would do much to minimize the damage of the wild Missouri River when it begins its mischief of erosion and flood.

A tool is but the extension of a man's hand, and a machine is but a complex tool. And he that invents a machine augments the power of a man and the well-being of men.
—*Henry Ward Beecher*

The foregoing examples, the undue emphasis placed on an economically unsound navigation south of Sioux City, Iowa, lack of assurance of available water supply, and the utter neglect of the soil conservation aspects of the program illustrates why in my judgment a Missouri Valley Authority would be a far better approach.

The great advantage that a Missouri Valley Authority approach has over the Pick-Sloan plan is that the authority can develop an over-all program, putting everything in its proper perspective. The authority can weigh conflicting demands of various programs and judge between them on a rational basis. As the situation stands, decisions are too often made upon the basis of political power. An undeserving project promoted by a powerful sponsor too often takes precedence over a deserving project advocated by a politically weak sponsor.

NO claim is made, of course, that an MVA would be absolutely above politics, but I do believe that political considerations would be minimized to the long-run best interests of the people in the Missouri Basin.

Of no small interest to the American taxpayer is the fact that a Missouri Valley Authority can do the job more cheaply, more completely, more efficiently than a series of piecemeal projects. It can avoid waste and duplication by empire-building government agencies by assigning work on an efficient basis. The problems involved are so vast, so complex, that only an over-all planning agency with the power to put its plans into effect can do the kind of job in the Missouri Basin that the country needs done.

Let us not deceive ourselves that we can do the job cheaper by a series of projects each costing less than an MVA program would cost. When we are finished with such a haphazard program we will have an inferior product and we will have paid a premium price for it.

Let us take a specific example—Garrison Dam in central North Dakota.

The enormity of this undertaking staggers the imagination. It will form a lake longer than either Lake Ontario or Lake Huron. Its 1,600 mile long shoreline will be greater than Lake Erie's. Unfortunately, a great many professional engineer friends of mine have told me that the Missouri River, as it comes down to Garrison Dam is so heavily laden with silt that in a few years from now the silt will absorb the water capacity of the dam and all we will have there will be a prize collection of silt and sand. As a taxpayer, I hope they are wrong.

I BELIEVE the Missouri Valley Authority would be the more beneficial approach—not only for the interests of the people who live in that particular region, but also for the national interest as a whole. It should have local as well as national representatives and should not be a centralized bureaucracy.

For years the nation has paid the costs of floods on the Missouri, has felt the consequences of lower incomes of the people of the basin, the impact of smaller crop output because of the depletion of the soil and the lack of water. Lower incomes in the valley mean less business to people of the rest of the nation in selling their products to the people of the Missouri Valley.

One important feature of an MVA program would be the development of electric power. There is a power shortage over most of the Missouri Basin, particularly in its upper reaches. Many important industries could expand into that region if they could be assured of low-cost, firm power to supply their needs.

It is no coincidence that much of the opposition to a Missouri Valley Authority is inspired by private power groups who feel that they would rather deal with a hodge-podge mixture of federal and state agencies rather than deal with one co-ordinated agency with the ability to protect the people's interest that the MVA would have.

Let us sum up this argument in a few brief sentences by quoting from the Hoover Commission report on the development of the Missouri Valley:

"There is simply no escaping the fact that so long as the present overlapping of functions exists with respect to the Corps of Engineers, the Bureau of Reclamation and the Federal Power Commission, costly duplication, confusion, and competition are bound to result. It has been demonstrated time and again that neither by voluntary cooperation nor by executive coordination can the major conflicts be ironed out . . ."

Members of the National Society of Professional Engineers as men of science can easily appreciate the significance and importance of substituting one body able to do a complete, thorough job of developing the valley for a score of agencies doing a haphazard, costly, inefficient job of it.

MVA—Con

(*Continued from page* 9)

NO! **Valley authorities can easily become a kind of superagency — above any really effective control by anyone.**

owner given an opportunity to tell why he needs more than 160 acres of irrigable land.

The Authority may (in its magnanimity) find in favor of the land owner and allow him to own and operate land in excess of 160 acres, but the law requires that this may in no case be more than a minor fraction of a second 160 acres.

What if you own 320 acres? If you do, this legislation will literally make you sell half of it or go without the benefits of the irrigation water.

Read this carefully:
Any irrigable land above the 160 acres described is stated by the act to be "excess land." Any farmer who owns such "excess land," cannot obtain delivery of water from the MVA *for any amount of his land* unless he first agrees to dispose of his "excess land" within a reasonable time. (Defined by the act as not more than five years.) He must sell this land at an appraised value to be determined by the corporation, or in case of disagreement, by an arbiter.

Thus it is plain that a farmer owning more than 160 acres of land could not even irrigate one acre of it with MVA water until he agrees to sell his "excess land" at a price set by the Authority of someone else.

In my view, it's pretty hard to find justification for that sort of thing.

Earlier in this article I mentioned the Pick-Sloan plan, already authorized in part by Congress. I said that it was adequate to do the job of protecting the Missouri Basin from flood and other dangers. It is interesting to contrast the philosophy between this plan with that of the MVA.

The Pick-Sloan plan began as an engineering design for the control of natural forces which harass people. It is based on the premise that the most important thing to do first is to construct the engineering projects necessary to prevent disastrous floods, to make use of the irrigable water and leave the planning to the people who live in the area.

Representatives of the Governors of the various states involved and representatives of the Army Corps of Engineers and the Bureau of Reclamation have formed a committee which is functioning very well indeed in meeting problems posed by the Missouri River. While these problems are by no means solved, it is impossible to solve them over-night by any means, specifically including an MVA. A good start toward the solutions has been made and progress continues at a rapid pace.

The MVA, on the other hand, wants a blank check. It wants the power to do anything it feels like doing granted in advance. When it has the power, then it will make up its mind what it wants to do. The MVA has no engineering plan. It hasn't even an engineering survey. It is originated on the theory that authority and control must be established first. The Missouri River Basin covering more than 10 states and 530,000 square miles of American soil, can be made into whatever plan it sees fit.

The dividing of America into regional authorities, as has often been proposed by legislation setting up various river valley authorities is a new and disturbing note entering our political economy. These authorities are powerful enough to dwarf state governments. The constitution provides only for National Government and constituent states. If new elements are to be added, it should be done through Constitutional amendment, in my opinion, not by legislation. Valley authorities' powers are constitutionally limited to the Federal Government's powers, which in turn rest on the constitutional power to regulate commerce and navigation. Any powers beyond these are assumed at the expense of the states and such assumption is unconstitutional.

These valley authorities can easily become a kind of superagency—above any really effective control by anyone. An act creating such an authority must be carefully drawn lest the only check on its power would solely be approval or disapproval of an already accomplished fact. The legislation creating the MVA is objectionable in that it only provides for a minimum of control by Congress.

A scene from the Shoshone Valley of Wyoming where Senator Cain says many of the people still owe at least half of their debt for the construction of irrigation systems and their upkeep.

The governors of the states involved recognize this, and a majority of them oppose the MVA. As one governor recently said:

The members of the valley authority would be appointed by the President. The State with the greatest interest in the problem might not be represented on the authority or have any say in its decisions."

As set up by the proposed legislation, the act does not properly safeguard the vital interests of the states of the Missouri Valley.

Still another objection to the MVA is that it would finance itself primarily from the sale of electric power in competition with private power companies. In fact, the accent on the sale of electric power revenues constantly stressed by advocates of the Missouri Valley Authority leads one to the suspicion that federal regional authorities, based on water resources, are really an excuse for the Federal government to take over the power industry by subterfuge.

No private power company can hold out long in the face of determined government competition. The heavy taxes such companies pay finance the operations of their competitor. In my opinion, there is considerable weight to the contentions of some constitutional lawyers that government business operations are unconstitutional.

Now let's examine the $64 question of how much this proposed plan would cost. The answer is, nobody seems to know except that it will run into many billions.

Government agencies have tried to sugar-coat the bitter pill of cost by issuing glowing estimates of partial bits of the project. The hard fact is that construction costs have almost doubled since the war, for some items prices have more than tripled—and they are still soaring. Billions will have to be spent on the MVA for benefits which will not be likely to be repaid to the Federal government for more than a century.

A conservative estimate of the total cost involved would place the figure at about 20 billions. Nobody knows how many dams and other engineering projects the MVA plans to construct. The smaller Pick-Sloan plan envisions the building of 105 dams and thousands of miles of irrigation ditches. The Department of Agriculture has a plan for developing soil conservation programs, reforestation, and other agricultural measures. These two plans together are estimated to cost not less than 15 billions. The MVA, because it is much broader in scope, would presumably cost considerably more. Twenty billion dollars is a conservative estimate. Even in a day of record Federal spending (whatever became of the balanced budget, anyway), that isn't hay.

Advocates of the MVA get around the question of cost neatly—if one doesn't examine the facts. They say that money spent on MVA isn't spent at all—for the cost of installing irrigation systems will be repaid by farmers whose land is benefited and the sale of power will bring in further revenue. These will repay the government nearly in full, we are assured.

We have already examined the probable effect on business of the government getting into competition with the power companies. Let us look at the premise that the government will be repaid for the money spent on building irrigation systems.

Fortune magazine, in assaying the changes of the government to get this money back in a reasonable length of time, reports that in the Shoshone Valley of Wyoming, there are homesteaders who have lived on farms first irrigated by the Bureau of Reclamation over forty years ago. In many cases the original settlers have died and their children are carrying on. Many of these, the magazine reports, still owe at least half of their debt to the Bureau of Reclamation for the original construction of the irrigation system, for the subsequent addition of drainage ditches, and for the continuing costs of operation and maintenance.

Fortune further reports that there are many ex-GI's, recently settled in the valley, whose children and grandchildren will probably be paying off for seventy-five and one hundred years.

Furthermore, as shown by past experiences, estimates of the cost of goverment projects in the Missouri Valley mean nothnig. A House of Representatives subcommittee, headed by Representative John H. Kerr (D., North Carolina), investigating the spending of federal funds on projects now underway under the Pick-Sloan plan made some startling discoveries.

The Subcommittee found the 182 flood control and irrigation projects originally estimated to cost the taxpayers $2,638,517,000 had skyrocketed to $5,912,415,000—an increase of 124%. Later, after the Subcommittee's report was issued, it was learned that the costs have jumped another $116,000,000 to $6,028,000,000—an increase of 136% over the original estimates.

The projects are still far from complete. I have little doubt that the taxpayers will have to absorb further price increases, possibly up to three times the original estimates.

Summing up, I base my opposition to the MVA on its cost, on the theory of the legislation, and the manner in which it is drawn. Its basic premises are wrong, in my view, because it has no plan. Its sponsors have come to Congress with a blank check. They are asking us to sign on the dotted line without filling in any figures. Once we sign, the Authority will fill in the figures for us. We are asked to give MVA blanket authority to do virtually anything it may, from time to time, see fit to do. Let MVA advocates develop a fully-rounded program and present it to Congress for approval or disapproval. Let us see what we are voting for before we vote. I have to know what I am signing before I put my name on the line.

Finally, I am opposed to the Missouri Valley Authority as established by this legislation, because I believe the act gives the agency far too much power over the lives and property of the people concerned, because there is no really effective check on the power of officials of the Authority, and because I am against setting up regional supergovernments which will dwarf the states and which are not provided for in the Constitution.

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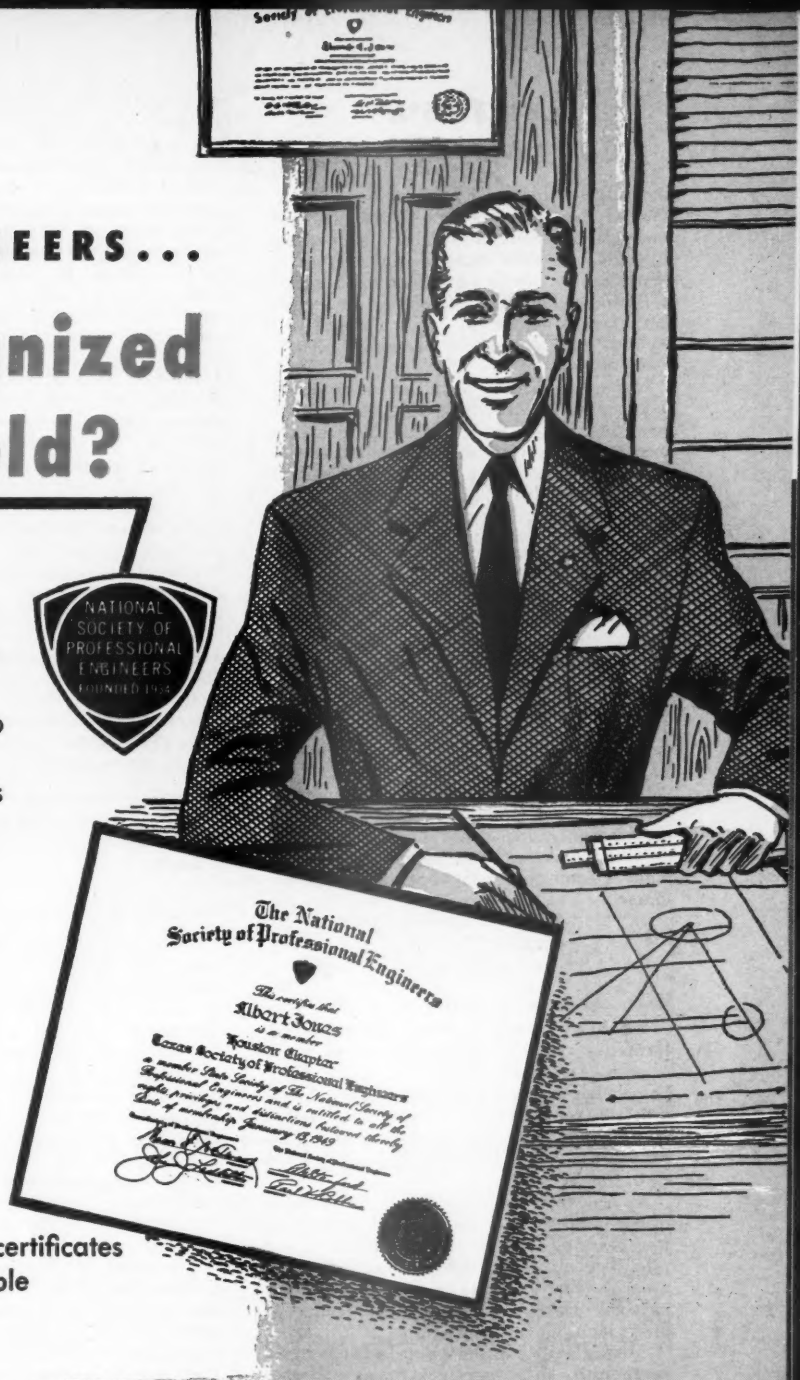
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Chapter

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Letters

(*Continued from page* 5)

gineering problem or designed a power plant piping system. I feel that a pleasant personality, a smile, a glad hand shake, the ability to express oneself concisely and clearly are definitely important to everyone in business, not only engineers. The question of how important it is I would say depends largely upon the position the engineer is filling.

You mentioned a panel of seven engineers; you illustrated photos of six personalities in politics—all these men are executives. To them their personalities are of greatest importance. Their work is mainly winning confidence of others and getting others to follow their directions. Now, many other professional engineers have attained success—and by success I mean in the individuals own idea of success—where less personality and much greater knowledge of engineering was necessary. Under present day conditions where engineers in managing positions are paid the most we are often inclined to measure the professional engineer who really turns out the engineering designs, the engineering specifications, the engineering know-how as less successful. This is not the case.

In my opinion, personality is important in professional engineering just as it is in every other business; but a good personality does not make a good engineer—it might make a good politician—but not a good engineer.

B. R. Wheelock, Jr., P. E.
Lincoln Park, Pa.

Dear Editor:

We have greatly enjoyed the many informative articles appearing in recent issues of the American Engineer. Some little knowledge of the problem makes us appreciate your efforts all the more, but—reading the arguments over mind and manners in the November issue, the spirit moves us to slight protest.

Approaching "retirement age," discussion of the relative value of mind and personality in achieving success seems to us rather idle. Success is too relative, and depends upon too many factors of equal, or perhaps in some instances, greater significance to merit singling out those two.

Mental ability in some degree is obviously prerequisite to advancement in any occupation. No doubt a "good mind" helps. So, too, a "pleasing personality" smooths the rough spots and oils the bearings in contact with others. Yet personality is but a superficial veneer concealing character, rather than as has been said, a "true reflection of the soul." It may be acquired, and used to "cover a multitude of sins."

We sometimes see a fool possessed of talent, but never of judgment.
—*La Rouchefoucauld*

Statistics indicate that successful position is dependent upon character 90 per cent. But again, success is relative and depends upon the goal. Success, in its generally accepted, but narrow financial sense, may be attained by means of a perverted if keen mentality assisted by charming manners concealing utterly undesirable characteristics. Indeed, attainment of this goal under present trends toward socialistic and paternalistic governmental concepts is today well nigh impossible without an elastic conscience. The number is legion who thus over-step the thin line of "good business" bordering strict honesty. Success measured in terms of happiness and satisfaction, however, covers a much broader field. It is dependent neither upon unusual mental attributes nor personal charm. It is limited not by the extent of financial security attained, but by the degree of ambition. Innumerable instances might be cited, some seeming to favor one side, others the opposite argument. Many, too, are the exceptions which may either prove or disprove the rule according to the viewpoint.

We have in mind the possessor of a keen analytical mind, considerable engineering ability, and a personality suited to the occasion. This man made an illuminating statement to the writer some thirty years ago, to the effect that he intended going to the top regardless of upon whom he might trample. Today he has achieved only moderate responsibility, quite general dislike by his associates, perhaps fair financial success, but we have reason to believe no great happiness nor satisfaction.

Another outstanding engineer, with a quite ordinary mentality adorning a most disagreeable disposition, whose social contacts have been mainly those thrust upon him, has risen through the years and sheer force of character to a very responsible position in his company.

Not to know what happened before one was born is always to be a child.
—*Cicero*

Perhaps you may pardon a personal reference. We think it fair to claim average intelligence, and experience gives no reason to think our personality repels. Our goal has never included acquisition of riches, nor have we aspired greatly to positions of prominence or leadership. Too, the average social activities have held little appeal. Yet, we do not feel utterly lacking in success. Our hope and satisfaction has been to bring up our children in a normally happy atmosphere, well fitted for whatever achievement they might personally desire, and to be a credit to their parents and country.

The point of all which, if such there be, is three-fold. First, an attempt to illustrate the viewpoint, that although of undoubted value, unusual attributes of either mind or personality are neither essential to nor do they assure success in life. Second, that these two and many other factors are so inter-connected and inter-dependent discussion of their relative importance helps but little. And, third, having read such varying opinions of prominent leaders in our profession, it seems but fair there be some expression from the far larger majority, without whose support such leaders might accomplish little.

R. T. Phelps, P.E.,
Bluefield, W. Va.

Thought for the Times . . .

Dear Editor:

I read Dr. Perkins' article in the October, 1951, issue with interest. In particular, I noticed and questioned the italicized portion on propaganda on page 13. Hence, I am enclosing a recent article from the local newspaper, the *Akron Beacon Journal*, entitled "Engineers' Warning." I think that the Cornell Engineering Dean, S. C. Hollister, hit the nail on the head in his second category of solution which brings out industry's responsibilities. In fact, I think this is the crux of the problem. In this connection, my limited experience in the engineering field indicates the following questions should be answered to the satisfaction of all concerned parties. However, I do not ask you or anyone else to agree with the propriety of the questions or my indicated answers; for they represent only my opinion:

The greatest trust between man and man is the trust of giving counsel.
—*Bacon*

(1) Does industry really want more engineers?

I have the impression that industry wants highly trained, complacent, and efficient pencil-pushing clerks. My experience and limited observations indicate that young engineers are quite frequently assigned to and held to jobs that first-year engineering students could easily handle. Further, they are also quite likely to be held in line for their promotions and merit raises in compensation behind men who are not only not engineers, but never intend to be.

(2) What recognition does industry accord engineers who have become competent, registered engineers?

In my opinion, industry accords them none at all.

(3) Is it really true that propaganda forced a drastic cut in the enrollment in engineering schools?

I have the impression that the limited opportunities offered by the engineering field have done more to reduce enrollment than has any propaganda. In particular, I have noticed two things:

(a) A migration of engineers to semi-engineering or less-vital-for-defense occupations because of greater financial incentive. For example, I know two engineers who are now selling real estate; and another who is in the business of installing communications systems.

(b) A greater appeal of the trades to more and more fellows. This is buttressed by the article entitled "When Are You Going To Turn Respectable?" (*Reader's Digest*, July 1950) and a recent newspaper article stating that top men in some steel plant occupations can earn $15,000 to $18,000 a year. This means, in effect, that some trades offer as much financial remuneration as some aspects of engineering without the 4-6 year penalty of expenses plus lack of income.

(4) Is not the term "engineer" used very loosely?

I have seen the terms "installation engineer," "sales engineer," "management engineer," "estimating engineer," etc. used. Yet, I doubt that many individuals with such titles are engineers in the loosest sense of the word. If they are, that is one thing; if they are not they should be forced to delete the term "engineer" from their titles.

Further, when I was on active duty with the U. S. (Army) Air Forces, I was classified with the M.O.S. of 4823. At first I was called an "Aircraft Engineering Officer"; later, I was called an "Aircraft Maintenance Officer," although my duty hadn't changed. It would appear that the type of duty rather than some official whim should have determined my title. For, despite the change in title, I was not engaged in an engineering activity from the very outset.

Later, during my tour of military duty, I ran into the term "pigeoneer." In this instance, the connotation was clear, i.e., the engineer in charge of pigeons.

A. Slaton Walker, P.E.,
Akron, Ohio

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EDITORIALS

Smooth Sailing in '52 . . .

As we go to press, a lone man is riding out a powerful storm on a damaged ship called "The Flying Enterprise" somewhere in the choppy waters of the Atlantic Ocean. The Captain's brave decision to stay with his ship has been a wonderful inspiration for all of us to carry into the New Year. There may be rough seas ahead for America and the world in 1952, but a firm purpose based on our most heartfelt convictions can help us to weather the wind.

The AMERICAN ENGINEER extends to all its readers its best wishes for a happy, healthful and satisfying New Year. Our 1952 resolution is to try and produce the kind of magazine you want to see, and to continue telling the story of the profession's importance to the Nation.

The Crisis in Metal . . .

At the invitation of Defense Mobilization Chief Charles E. Wilson, The AMERICAN ENGINEER attended a meeting of the nation's trade press at which Mr. Wilson and Manly Fleischmann, Defense Administrator, pleaded that all possible steps be taken to get scrap metal into the channels of war production.

Copper, aluminum, iron, and steel scrap are urgently needed and unless steel scrap pours into the mills at the maximum possible rate, the nation faces a disastrous slow down on the defense effort, the government officials said. Some mills have only a one day's operating supply.

Defense Administrator Fleischmann laid it right on the line. "For many years we have assumed that we are a 'have' nation insofar as raw materials are concerned," he said, "but now we face a terrible shortage of metals of all kinds. Some, like nickel, columbium and cobalt do not exist in the free world in the amounts necessary to supply our arms program. We must improvise as best we can. Without maximum scrap production of all metals we are in very serious trouble."

"If anybody had told me a year ago," Defense Mobilizer Wilson said, "the extent of our metal shortage today, I wouldn't have believed it. But now it's just one of the unpleasant facts of life. As the defense effort gets stepped up, there will be an increasing demand for those metals already in short supply."

Both Mr. Wilson and Mr. Fleischmann are confident that there is enough scrap available to meet the metal crisis, at least for a while, if people can be prevailed upon to bring it in.

Frankly, THE AMERICAN ENGINEER was not a little surprized and alarmed at the predictions of these responsible officials. Probably no group in America would know the whereabouts of more scrap than engineers. We urge you to cooperate with your government in turning it in to help the defense effort.

Doctor Bennett's Death . . .

Many members of the National Society of Professional Engineers will be saddened by the untimely death of Dr. Henry Bennett, administrator of America's Point Four program of economic aid to underdeveloped nations, in an airplane crash near Tehran on Christmas Eve.

Dr. Bennett was the principal speaker of NSPE's last annual meeting at Minneapolis in June and many members of our Society were personal friends of his. He believed that engineering could play a crucial role in preserving the peace and advancing the physical and moral well-being of men everywhere.

Dr. Bennett was President of Oklahoma A&M College and attracted nation-wide and international attention in 1946 as a delegate to the United Nations Food and Agricultural Organization. He believed that by adopting American engineering methods and "know-how" the food production and living standards of the world could be enormously raised.

There was nothing of the chauvinist in Henry Bennett. He had no thought of trying to "Americanize" backward peoples and he was not trying to cast America in the role of Lady Bountiful. He said:

> "Our friends of the underdeveloped areas do not want charity. They want to become independent, by their own efforts, of our help and of all outside help. They are eternally right in asking us to share knowledge and skill —which cannot be *given* away—so that they may achieve self-reliance and the dignity that goes with it. They represent old cultures that long pre-date ours . . . They would not permit us to superimpose our culture on theirs, even if we were so foolish as to try. There are as many paths to progress as there are nations. They want to choose their own."

The pioneers who died in putting the policy into practice will be sorely missed. But it is not given to many to lose their lives in so constructive and hopeful a cause.